THE DRUG AND COSMETIC INDUSTRY

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Formerly Called "DRUG MARKETS"

April, 1933

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Heetfield-Tillou, Chicago

ANOTHER WINNER: **Cup winning entry in the carton group of Modern Packaging's All-America Twelve Competition, 1932. Three of the four sizes of Campana's Italian Balm Packages are sealed with Phoenix Metal Caps. PHOENIX METAL CAP CO., 2444 West Sixteenth Street, CHICAGO**

A New Drug Law

THE "New Deal" appears to have gotten around to this industry with the proposal that a new Federal Food & Drugs Act throwing much more stringent restrictions around the industry be enacted. Not only is it proposed to give the Food and Drug Administration control over advertising, the Pharmacopoeia, standards of non-official products, as well as cosmetics, but it is further proposed to compel publications of formulas of proprietary medicines on the labels, and to cause manufacturers to submit to some sort of licensing system.

THAT abuses have occurred under the present system is a known fact, but the industry still has the right to know who is going to regulate it under the proposed system, and just who is going to benefit by the change. If the change is wholly in the public interest, well and good; the industry will not only submit to the change, but the leaders of the industry will work for its advancement.

BUT the question of selfish interest can not be submerged in the enforcement of such a law any more than it can be submerged in other places, and after a taste of the unreasonableness of a drug control chief under the existing law as exemplified by the recent Chief Durrett, the industry can not be certain that such a law would serve the public interest any more than it would serve the interest of the industry.

THE question of allowing complete domination of this industry by the medical interests must always loom large in any regulatory legislation proposed. It would be just as inimical to the public interest to allow the medical interests completely to dominate the drug industry as it would be to allow the drug industry to be free entirely of regulation. Both the medical profession and the drug industry have their leaders of high ideals. But both also have their Judases. Organized medicine exists for the reason that it works to advance the profits of the profession. Organized manufacturing pharmacy exists for the reason that it seeks to advance the profits of the business.

ALTHOUGH the courts deny that there can be competition between a profession and a trade, there is definitely competition between organized medicine and manufacturing pharmacy, of which the leaders in both are quite conscious. If the "New Deal" is to mean anything to this industry it must mean that the industry will be allowed the fullest freedom of action when working in the public interest, and that regulatory chiefs will be just as far removed from interest in the medical profession as they are from interest in the business of manufacturing pharmacy.

Narcotic Control

The plan to reunite the departments of alcohol control and narcotic control in the Department of the Treasury might have much to recommend it but prohibition and restriction of narcotics are two entirely different things in the minds of the people of this country. The average individual in this country who uses alcoholic beverages would have no qualms about the law, hence graft and the consequent breaking down of the law has been widespread. But the average citizen feels entirely different regarding narcotics. The narcotic laws he is most anxious to help enforce. He does not want in any way to aid in the evasion of the narcotic laws.

Further, narcotic control has reached a new peak of efficiency since the separation of the two departments. Illicit narcotics are much more difficult to obtain and prices have risen sharply during the past few years while other prices were falling. This should be proof enough. Economy in government is an excellent thing, but not when a slight amount of economy might break down much fine work that it has taken a number of years to accomplish.

• • •

X-Ray Assay

We read in paragraph one under the heading "Vitamins," page 207 of your March edition the following remarks:

> "We visited a cod liver oil plant recently and were quite surprised and very much intrigued to see them using the X-ray to photograph the hind leg of the experimental rats rather than killing the rats and splitting the bones for vitamin assay. Not that we have any compunctions about killing rats, but the other method seems so much more progressive and modern."

The above only goes to show that there is nothing new under the Sun, for we believe that the X-ray photograph method of determining vitamin D content of Cod Liver Oil originated in our Laboratories in 1927, and has been used constantly since in our tests. If you will refer to New and Non-Official Remedies, edition of 1928, page 254, you will find this statement in connection with the standards of NASON'S PALATABLE COD LIVER OIL, "and an antirachitic potency such that 0.2 Gm. per day will produce definite healing (as determined by X-ray photographs), in the leg bones of rachitic rats in eight days when added to a diet lacking in vitamin D, the rats being also deprived of ultra-violet light."

This X-ray photograph method is quite fully described by Dr. Church in his paper read at the American Drug Manugacturers Association Convention in 1929 at Asheville, North Carolina and published on page 237 of the Proceedings for that year.

Our experiments have shown that the results obtained by this method check closely with the so-called "line" test.

George E. Ewe,
Chemist in charge of control, Research Laboratories,
Tailby Nason Company.

April 4, 1933.

• • •

New and Non-Official

• • •

Protecting Infant Industry

The latest group to claim the brewing industry is the Fourteenth Exposition of Chemical Industries which has announced that it will include a section devoted to the brewing industry, its processes and equipment. Now that this claim has been staked practically everybody but us has a hat in the ring.

We hope it won't prove too much of a shock when the brewing industry decides that it has an identity of its own.

• • •

With Backs to the Wall

From the San Diego Advertising Club's *Ad Pointer:* "Because of the present financial stringency . . . the hard times party planned for Saturday evening has been postponed until some time next month."

• • •

Great Moments in History

—When the bright young copywriter discovered theol.

Who knows but what, if he had discovered it six months earlier, we might never have had legal beer!

• • •

We View with Alarum!

The introduction of demountable and detachable beauty trimmings. Starting with eyelashes, it now includes lips, noses and finger nails. Carried to its logical conclusion this will completely eliminate the cosmetic branch of the industry.

How much rouge do you need on demountable lips, how much mascara on attachable eyelashes, how much polish on removable nails, and how much powder on a detachable nose? We ask you.

• • •

Reading the Ads

Pomegranite Juice is the latest offering for reducing excess fat. "Hollywood Pomegranite Juice" is sponsored by United Remedies, Inc.

"X-Bazin," a depilatory, advertises with "Don't Be an Airedale," and marks the spots, "X", where you might be an airedale if you don't use "X-Bazin."

The Forhan Company is offering a free lipstick with a tube of its tooth paste. The lipstick is called "Coryell" and the maker is thus far unannounced.

• • •

Touch Not a Single Bough

Frankly, our chief fear concerning the "new deal" and its operation in the drug and cosmetic field is that it might interfere with the inspired peregrinations of our old friend Dr. Morris Fishbein.

The good doctor still remains our favorite humorist and we should hate to see anything happen which might spoil his act.

• • •

Ten Years Ago

From our pages, April 1923

Legislation taxing cosmetics in Kansas, W. Virginia and Pennsylvania is criticized in a circular issued by Frank K. Woodworth, business manager of the American Manufacturers of Toilet Articles. Kansas and Pennsylvania propose a tax on all perfumes, cosmetics and proprietary medicines and a definition of the term "cosmetics" in the Kansas act, has a wide range which covers practically any toilet article.

The American demand for foreign perfumery and cosmetics was 35 per cent. greater for the 11 months of 1922 than in the corresponding period of 1921.

The United States Industrial Alcohol Co. for 1922 reports net earnings of $1,686,643 after operating expenses, maintenance, repairs and other charges. This compares with a net loss of $82,638 in 1921 after the same deductions and write-off of $1,568,679 for inventory adjustment.

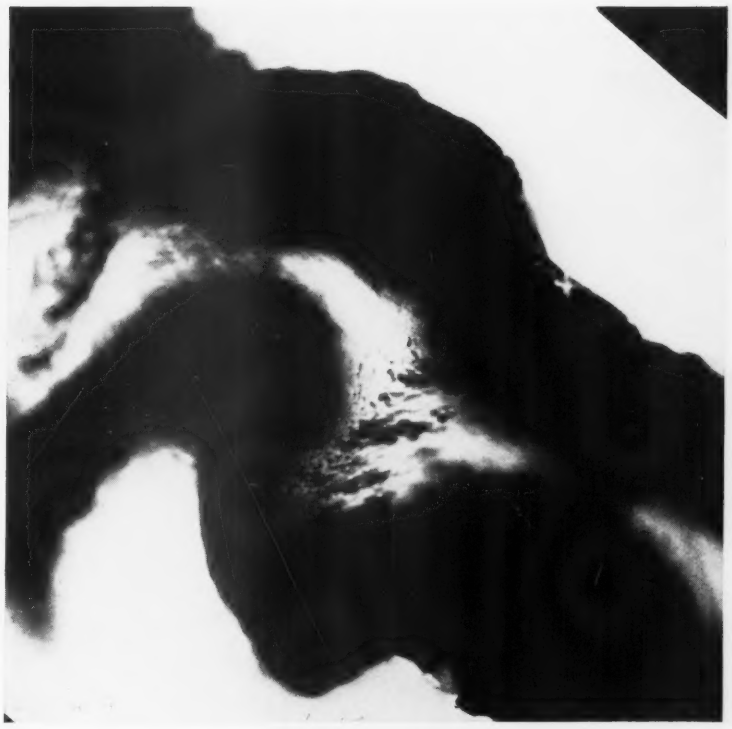
Irving Fisher, professor of economics at Yale University, says that last week's prices averaged 167 per cent. of the pre-war level. The purchasing power of the dollar, he said, is 59 9/10 pre-war cents.

Is Cutaneous Absorption a Myth?

(A reply to Dr. Brady)

By

Carl Scheffel, Ph.B., M.D.*



Reproduction of the epidermis magnified about 1500 diameters. This epidermis has been treated with salicylic acid and lanolin ointment, and then removed from palm of hand. Center of picture shows one papilla, or ridge.

It is well known that when salicylic acid is treated with ferric chloride a violet color is produced. Moreover, if salicylic acid has penetrated the epidermis and that tissue is then treated with ferric chloride, the resulting violet discoloration stains the tissue at those points so that it can readily be photographed under the microscope.

Picture clearly shows that salicylic acid was absorbed to the extent of complete penetration in the human live skin.

THE subject of absorption by or through the skin of substances used for cosmetic, hygienic or therapeutic purposes, while of the utmost practical importance to the manufacturer as well as to the consumer of such products, seems to have been more or less neglected, especially by certain manufacturers. Moreover, in this connection it is of extreme importance to differentiate between absorption from the surface of the skin, absorption from the openings in the skin, and absorption through the skin.

For strictly cosmetic purposes the absorption by the skin of substances applied to its surface, or even substances rubbed into the several openings of the skin, may be either very desirable or highly objectionable depending entirely upon the nature of the substances used and the objective sought to be accomplished. For all excepting protective therapeutic purposes, on the other hand, it is almost axiomatic that unless substances are absorbed by the skin they cannot be therapeutically effective beyond acting as protectives.

From a practical standpoint it makes a tremendous difference whether a cosmetic substance which should not be absorbed by the skin tissue itself, much less being

*Medical Director, Hart Drug Corporation.

absorbed by the skin and then passing into the bloodstream, remains upon the skin, or is absorbed in a manner to cause some degree of poisoning. Conversely, it is of equal importance that substances intended to act within the skin tissue itself, or be absorbed by the skin in order that it may pass through this tissue and then be taken up by the blood stream, not merely remain unabsorbed upon the skin's surface.

In order to obtain a clear understanding of the pros and cons of the skin absorption a reasonable understanding of the microscopic structure, the chief functions, and some of the chemical peculiarities of the skin, becomes essential. Rather crudely stated, the skin consists of two parts each having distinctly different structure, functions and chemical characteristics. The so-called epidermis or outer skin consists of a number of layers of flattened cells rich in keratin, a sulfur-like substance that is insoluble and non-penetrable for many substances. The cells situated below the keratin-rich layers differ somewhat in structure or form in that they are less flattened, and instead of being rich in keratin contain the pigment that distinguishes the white, black, red and yellow races. The epidermis has two chief functions. Primarily it affords the body a powerful protection against outside substances and influences, including heat, cold and certain light rays. Secondarily, it aids in eliminating important waste matters from the body.

The other portion of the skin, usually called the dermis, largely consists of cell structures having fibrous and connective tissue properties, and these cells are shaped differently than those of the epidermis, are chemically quite differently constituted, and in the dermis is also found the blood vessels of the skin and the nerves. Liberally sprinkled within both the epidermis and the dermis are found hair follicles, sweat glands and the ducts leading from them, and sebaceous glands and ducts leading to the surface from them. These openings and glanular structures are not evenly distributed in the skin, but widely vary in number in different parts of the body—a fact worthy of careful attention to those interested in the cosmetic effects capable of being produced by influencing these structures in the skin.

First of all, we must consider somewhat the outermost protective layers of the skin and their chemical peculiarity. These layers are chiefly composed of flat, horny cells rich in a substance called keratin which is extremely insoluble and inpenetrable to most substances. It is extremely rich in sulfur in cystin form. It is this outer keratin-rich layer that forms the chief barrier against skin absorption for most substances, among them, water, alcohol, petrolatum, gum combinations and many other ingredients frequently used in cosmetics as well as skin therapy.

Now at this point please do not jump to an erroneous interpretation and consequently false conclusion concerning the foregoing statement. Just because the outermost horny layers of the skin will not absorb these substances, it by no means follows that they *may not, but do not necessarily*— become absorbed when they are forced into the deeper layers of the skin by way of the hair follicles, and ducts leading from the sweat and sebaceous glands. Why? Because the lining of these several structures that open upon the skin is not composed of horny cells impervious to some of the aforementioned substances. Around this important point probably hinges much of the confusion and dispute as to whether or not the skin absorbs certain substances, and for purposes of clarification and uniformity it might be best to draw a distinct line of demarcation between absorption without mechanical aid from the horny covering of the skin, and absorption from the lining of the openings that lead to the surface of the skin upon which substances have been forced by friction, inunction or other mechanical means.

However, by no means all substances are prevented from absorption by the keratin-rich outer layers of the skin. This becomes readily demonstrable by two distinct methods of experimentation. In the first place, it has been proven beyond the shadow of doubt that some substances are capable of dissolving the keratin-rich layers of the skin so that these no longer form a barrier to skin absorption. Salicylic acid is one of these substances. Then, too, there are certain substances which seem to be capable of penetrating the keratin-rich layer of the skin without appreciably affecting it. Phenol and ordinary gasoline are among these substances.

One of the writer's tasks in connection with this subject matter in the past has been to either confirm or deny the systematic effect of an active ingredient in a certain preparation acting upon the skin. According to the manufacturers of this particular preparation certain quantities were to be placed in the bath water as a means of making cutaneous contact, and from the skin the substance was to be absorbed in sufficient quantities to respond to positive tests for the substance in the urine. Unfortunately this particular substance placed in the bath water could not be shown to have been absorbed through the skin while in such a watery vehicle in sufficient quantity to show positive in the urine even with most delicate tests.

However, and notwithstanding the negative finding when the particular substance under consideration was utilized in a vehicle of water, the same substance when placed in a vehicle of hydrated lanolin is readily absorbed to the degree of showing a positive test in the urine when applied in proper strength.

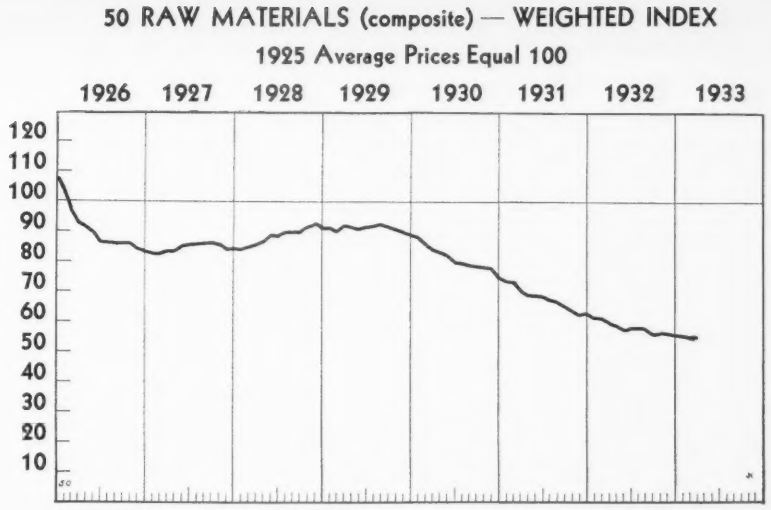
But there is yet another angle to this situation. Take the matter of salicylic acid, for purposes of illustration. In a proper vehicle salicylic acid is readily absorbed by the skin, but in quantities that can be safely borne by the skin it does not penetrate this tissue and enter the circulation as salicylic acid. Having powerful keratolytic property, this substance combines chiefly with the keratin-rich superficial layers of the skin there to be split up into other compounds to a sufficient degree to lose its original chemical identity. Or, in other words, the salicylic acid placed upon the skin (not rubbed in) is

(*Continued on page 348*)

50 Commodities

15 Medicinal Chemicals
15 Botanicals
15 Essential Oils

	1925 Consumption
Lanolin	3,000,000 lbs.
Stearic Acid	3,000,000 lbs.
Ppt. Chalk	5,000,000 lbs.
B. Copaiba	250,000 lbs.
B. Peru	50,000 lbs.



INDEXES

	1926	1927	1928	1929	1930	1931	1932	1933
Jan.	107.8	83.1	84.3	91.1	89.0	75.0	62.9	55.9
Feb.	103.7	82.6	84.0	91.1	87.9	73.7	61.5	55.5
Mar.	97.4	82.6	85.0	90.3	85.8	73.3	61.1	54.9
Apr.	92.5	83.8	85.6	91.9	84.4	70.3	59.6	55.0
May	91.1	83.6	86.8	91.2	83.1	69.2	58.6	
June	89.7	85.6	88.8	90.6	82.6	68.2	57.8	

	1926	1927	1928	1929	1930	1931	1932
July	86.6	86.1	88.0	91.5	80.0	68.1	58.0
Aug.	86.5	85.7	89.6	91.7	79.9	67.3	58.0
Sept.	85.9	85.9	89.5	92.6	78.7	66.7	57.8
Oct.	85.8	86.6	89.7	91.4	78.6	65.2	56.1
Nov.	85.8	85.6	91.4	90.8	78.0	63.7	56.6
Dec.	84.2	84.5	92.6	89.9	76.5	62.7	56.4

Our Indexes of Prices

AN INDEX number is a single number which replaces a more or less large group of numbers and is intended to reflect, in its own movement, the average movement of the group. Generally, the numbers are referred to a base, so that prices, etc., for a given month will appear as percentages of prices in the base year, which is here taken as 1925.

Last month we reproduced the first set of wholesale price indexes for the drug and cosmetic industry; as these are to be a regular monthly feature of our market service, it seems highly advisable to indicate the background for the material. When these indexes rise or fall in a given month they indicate that the general trend, in the group they cover, has been toward increased or decreased prices for the period. This does not mean that all prices have necessarily moved in the direction shown by the indexes but merely that the preponderating changes have been up or down. A use for the indexes that immediately suggests itself is connected with the price changes in a single commodity. When the latter moves against the trend, then causes of strength or weakness should be sought. When these causes are lacking, then it is reasonable to expect future readjustment of the price.

Care should be used, however, in attempting to predict the future movement of the index numbers or individual commodities that move in the same way. Here the only guides are hope coupled with instinct, neither very dependable. Statistical data have been much criticized, deservedly when improperly compiled, but much more frequently because the user himself was far too rash in neglecting their limitations and expected his charts to be magical indicators of the future. Proper index numbers tell what is and what was; only proper weighing of an almost infinite number of economic, political and psychological factors can give a reasonable estimate of what will be.

In making the index numbers, two problems arise, the mathematical and the economic. Given the necessary data, moving in an apparently haphazard manner, how may a truly representative average be reached? This is a wholly mathematical question and the solutions offered have been well-nigh numberless. For-

(*Continued on page 352*)

Brushless Shaves

The popular sweep of the brushless shaving cream threatens to make the shaving brush as antique as the dodo. So great indeed has been the acceptance of these preparations and so radically different are manufacturing methods entailed in making them that shaving products are completely losing their identity as soaps and are becoming cosmetic creams, pure and simple.

A good brushless shaving cream must have certain characteristics. It should neither be greasy nor sticky. In texture it should be smooth and free from lumps and should show no water separation. It should mix easily with the water on the wet beard. It should be easy to remove from the fingers and from the razor.

The purpose of any shaving cream is to hold the hairs of the beard erect so that they will present some resistance to the cut of the razor and not give way before it—one cause of pulling which is often blamed on the razor. In addition, the cream should lubricate the skin and leave it soft and free from irritation. It is desirable that the directions on the package specify that the face be washed before shaving but this is not always essential.

In presenting the following formulas THE DRUG AND COSMETIC INDUSTRY does so with a view to illustrating typical preparations and methods of manufacture, such information being published only to guide investigation. Each of these formulas should be carefully investigated and tested before being placed on the market.

BRUSHLESS SHAVE NO. 1

Lanolin	18 lbs.
Stearic Acid Triple	100 "
Alcohol	6 "
Emulsifying Agent	3 "
Borax	3 "
Water Distilled	290 "

Procedure: Melt the stearic acid. Add the lanolin and bring heat to 70 C. Dissolve borax and triethanolamine in water and bring to boiling point. Add the fat solution while agitating rapidly. When smooth, add perfume dissolved in alcohol. Stir at slow speed until cold.

BRUSHLESS SHAVE NO. 2.

Stearic Acid Triple	21 lbs.
Lanolin Anhyd.	3.5 "
Mineral Oil Light	8 "
Alcohol	1.5 "
Emulsifying Agent	1.6 "
Borax	1.5 "
Distilled Water	70 "

Procedure: As above, adding the oil with the stearic acid. Consistency of either may be regulated by changing quantity of water.

BRUSHLESS SHAVE NO. 3.

Glycerin	10 lbs.
Stearic Acid	10 "
Cocoa Butter	5 "
Water	70 "
Emulsifying Wax	5 "
	100 lbs.

Procedure: Melt the emulsifying agent and stir in water at 60 C. Add glycerin. Melt the stearic add to above. Perfume.

BRUSHLESS SHAVE NO. 4.

Glycerin	5 lbs.
Spermaceti	2 "
Mineral Oil	4 "
Lanolin	1 "
Stearic Acid	16 "
Water	67 "
Emulsifying Wax	5 "

Procedure: Melt spermaceti and stearic. Add lanolin and heat to 80 C. Heat water and add to emulsifying wax. Add glycerin. Pour in melted fats and waxes with constant stirring. Perfume.

BRUSHLESS SHAVE NO. 5 .

Stearic Acid Triple	75 lbs.
Sesame Oil	70 "
Spermaceti	10 "
Strong Ammonia Solution	10 "
Hot Water	315 "
Glycerin	30 "
Perfume qs.	

Procedure: Melt waxes and fats. Boil water, add ammonia and pour into melted fats with constant agitation. When completely saponified stir slowly until quite cold. Add perfume.

BRUSHLESS SHAVE NO. 6.

Stearic Acid	50 grams
Cocoa Butter	9 "
Sodium Carbonate Monohydrated	10 "
Borax	20 "
Glycerin	40 cc.
Alcohol	32 "
Water	400 "
Perfume qs.	

Procedure: Dissolve sodium, borax and glycerin in hot water. Melt the fats and waxes and add the alkali solution and stir briskly until effervescence ceases and a smooth white soap is formed. Stir slowly until cold add the perfume mixed with the alcohol.

The Banbar Case

An interesting case regarding a diabetic medicine was lost by the Food and Drug Administration, although they bent every effort to win. In this case they used the new weapon of criminal prosecution in place of the abandoned multiple seizures.

INTERPRETATION and application of the Sherley amendment to the national food and drugs act according to the ideas of the U. S. Food and Drug Administration suffered a serious setback, it is believed in drug trade circles, as a result of recent disposition of the Banbar case, in Pittsburgh, Pa. Officials of the Department of Agriculture say that this was the first case involving a preparation held out for treatment of diabetes which the government has lost.

A jury in the U. S. district court at Pittsburgh rendered a verdict acquitting Leo Banks Barrlet, manufacturer of the preparation known as Banbar, on the charge of violating the Sherley amendment. That provision of law is that a drug product is misbranded if false and fraudulent therapeutic claims be made on its label.

Barrlet was prosecuted under criminal provisions of the law, as distinguished from civil proceedings under it which involve seizure of goods alleged to be misbranded or adulterated. Formerly, criminal prosecutions under the food and drugs law were comparatively few and far between, but during the past year or two they have been more numerous.

The Department seems to have been paying special attention to alleged diabetic remedies recently. It issued a press release not long ago calling attention to the proposition that many such preparations were worthless and indicating an intention to keep after them. For the present, says Dr. Frederick J. Cullen, Chief of Drug Control, to The DRUG AND COSMETIC INDUSTRY:

"We will not let up in action on such preparations. We will go ahead the same as though the recent verdict at Pittsburgh had not been rendered. Many preparations offered for treatment of diabetic conditions are false and fraudulent. We will keep after these birds. They know that their preparations are no good. They are dangerous to mankind. Such preparations are apt to cause diabetics to abandon their special diet and the use of Insulin, with the result that they suffer setbacks. The diabetic is looking for straws to grasp, in his desire to get away from special diet and insulin."

Dr. Cullen reiterated the Food and Drug Administration thesis that has been heard since the days of Dr. J. J. Durrett, or earlier, that diet and insulin are the only two methods of scientific treatment for diabetes; that no drug or medicinal preparation administered by mouth constitute an adequate treatment for this disease.

This was largely the basis of the Administration's attack in the Banbar case. Department officials say they are confident that they made good on the charge that this product was falsely labeled as a treatment for diabetes. They doubt, however, that they succeeded in proving that the Sherley amendment's provision against fraud in therapeutic claims was violated. It was necessary to prove such fraud, in other words, that the manufacturer knew his claims were false, beyond a reasonable doubt, in the minds of the jury, in order to secure a conviction of Barrlet.

The Department of Agriculture exerted every effort to win. Some of its best men were sent to Pittsburgh to assist. Dr. Cullen stayed throughout the trial and sat in on all sessions of the court. The department called chemical experts to testify to the composition of the preparation. It was testified that one of the ingredients was equisetum, or horsetail, a botanical drug.

The department's star witness was Dr. Elliott P. Joslin, of Boston, Mass., who is declared to be a world authority on diabetes. He testified that ingredients of Banbar did not constitute a treatment for diabetes. His testimony was seconded by Dr. G. W. Boericke, of Philadelphia, a prominent member of the Homeopathic School, and by Dr. Joseph Barach, of Pittsburgh. The government also had lay witnesses who testified that they had used Banbar, but without the results claimed for it.

The defendant, Barrlet, testified that his wife had suffered from diabetes; that he had made up his preparation, Banbar; that she had used it and had been cured. On behalf of the defendant there were a number of lay witnesses who testified that they had been benefitted by using Banbar. Testimony of his chemists conflicted with that of government chemist's. Defendant also presented testimony of a Dr. Doering to the effect that he has used Banbar with 80 patients and had good results with a majority of them.

A number of testimonials were introduced in evidence by the defendant in support of his case. They

were from persons who had taken Banbar and stated they were benefited by its use. These testimonials were used in behalf of the defendant in an effort to show that he acted in good faith in labeling his product as being "for the diabetic."

Barrlet did not claim that his preparation would cure all cases of diabetes. He did claim, however, that the evidence showed that his product had therapeutic value; that it would aid or benefit the diabetic.

Analysis of the product, as made by the Food and Drug Administration, according to officials, showed that Banbar contained two or three diuretic drugs, administration of which, it was said, would increase the flow of urine and tend to show a decrease of the proportion of sugar contained therein. Analysis further showed that Banbar contained such a laxative ingredient as mandrake. This it was explained at Drug Control, tends to hurry food through the bowels without giving opportunity for its digestion and absorption. This process, it is said, may cause, temporarily, production of less sugar in the urine.

With reference to the action of the diuretic ingredients of Banbar, Drug Control experts assert that while there might appear to be a smaller quantity of sugar in a particular specimen of urine, yet that if the entire amount of urine passed during a twenty-four hour period were examined, there would probably be found to be as much sugar in it as there was before use of Banbar. With reference to the laxative ingredients of Banbar, experts say that they not only are not helpful in diabetes but that continued use of laxatives is injurious even to a well person.

Sale and shipment of Banbar is said by department officials to have been confined within the limits of Pennsylvania for some years. It could not be reached under the food and drugs law until after it had entered interstate commerce. Recently, the product is reported to have been used rather extensively.

The department appears to have realized that it would have a real job to convict the manufacturer, Barrlet. It accordingly sent J. P. Painter, legal assistant in the office of the Solicitor of the Department of Agriculture, to help Assistant United States Attorney Bryan with the trial of the case. The Department was confronted with the necessity of showing, not only that the label claim on Banbar was false, but also that, beyond a reasonable doubt, its manufacturer knew, when he shipped his product, that it would not do as claimed.

Among instructions given by the court to the jury was one to the effect that the language on the label should be considered from the viewpoint of those who read the label; also that persons who make or deal in substances alleged to be curative are in a position to have superior knowledge.

The above two points in the judge's charge appeared to favor the government. But on another point the judge said, in substance, that it made no difference how ignorant the manufacturer of Banbar was, if he honestly believed his product was good and would do as claimed. Government people say that the law did not contemplate such a situation. According to them, it must be presumed that a manufacturer of drugs and medicines has more than an average knowledge; that he should have made studies, tests, experiments, upon which he bases his statements and claims.

However, on account of the interest and importance of the issue involved in this case, that particular part of the Pittsburgh federal judge's charge to the jury last above referred to, may here be quoted, for the information of the trade:

"The government is called upon to establish here," said the judge, "that he (defendant Barrlet) either knew that this product was absolutely worthless, or that he wilfully and wantonly failed to inquire or acquaint himself with the value or lack of value of the product, and sent it out with entire lack of knowledge as to its quality, with the intent of getting the money of the person to whom it was sent, or who might seek to buy it, without any regard to its efficacy for the purpose for which it was held out; and even if you should find, therefore, that the product was worthless in the treatment of diabetes, before you return a verdict of guilty under the information (government's charge) it will be necessary for you to be satisfied beyond a reasonable doubt that he sent it out with an actual fraudulent intent.

"In that connection you will consider, of course, all the testimony which will throw light upon his mental state in sending out the package in question. The charge in the information is not that the defendant's product was not made pursuant to proper and scientific methods of investigation and test, or that it was not scientifically tested before it was put out, but that the defendant put it out with fraudulent intent. No matter how ignorant he may have been, or how unscientific or even careless his methods, such ignorance or lack of proper methods is not the charge of the information."

It is understood that government experts did not think it would be necessary to charge that Banbar was not a scientific preparation, the result of study, investigation and experiment. However, in the light of the court's instructions to the jury, it is believed that experts now wish that such a charge had been made and supported.

If the doctrine enunciated by the court is allowed to stand, government experts say that drug manufacturers will be relieved of a good deal of responsibility. It is suggested that the court has in effect licensed ignorant and careless persons to engage in the drug manufacturing business and put on the market various concoctions, provided only that they honestly believe their products are as good as claimed.

What will be the final results flowing from the Banbar decision, with relation to the future course of the drug trade, is a question lying in the lap of the gods.

Meanwhile, Department officials assert that it would still be possible to attack Banbar under the seizure provisions of the food and drugs law.

Sunburn Products

With warm weather approaching, manufacturers must start thinking of preparations for relief and prevention of sunburn. This article discusses all types of products.

VARIOUS creams are used for producing artificial sunburn. One preparation contains 10% benzoinated tallow, 3% beeswax, 15% lanolin, 15% ceresin wax, 57% mineral oil. Five parts of this base are mixed with 1 to 3 parts of mixture of 50% titanium dioxide and 50% sunburn color, such as special color tar colors, ochre, umber brown, pulverized reddle and like.

Sun-tan salve may also be made with 1% potassium permanganate 5% lanolin and 94% petrolatum. The brown color, which is really a precipitate of manganese, can be removed with citric acid or lemon juice.

A colorless sun-tan salve can be made with white petrolatum mixed with 2% of pyrogallol. The preparation must not be perfumed. Certain people have an idiocyncrasy towards pyrogallol with resulting headache and other effects.

When a sun-tan powder is desired, the fatty base is omitted and a pigment made containing titanium dioxide, precipitated chalk, or magnesium carbonate, mixed with color, such as reddle, in equal parts. A non-greasy powder can be made from a base used in vanishing creams. Generally about 10 to 12% of base is mixed with 70% water, 12% mineral oil (specific gravity 0.870 to 0.875), 1.25% titanium dioxide, 1.25% talc, and 2 to 3% sun-tan color. About 1% perfume may be added. Any shade may be obtained by varying the pigments. Titanium dioxide is preferred even though its price is higher than other white pigments, because of its coloring power.

Both salves and powders are used for healing excessive sunburn. A suitable salve, or rather oil, contains 2 parts tincture of benzoin, 2 parts borax, 20 parts peanut oil, 26 parts lime water. Another oil is olive oil containing 1% thymol.

Anaesthesin has been found very effective in making healing salves for sunburn. Anaesthesin is isobutyl ester of para-aminobenzoic acid. Thus 90% salve base, lanolin or the like, is mixed with 5% anaesthesin and 5% boric acid. Anaesthesin is also used in a healing powder, the base being 50% talc, 50% corn starch or rice starch of which 80 parts are used with 10 parts magnesium stearate and 10 parts anaesthesin powder.

The powder may also be made from zinc oxide. Thus 25% zinc oxide is mixed with 75% powder base, containing equal parts of magnesium stearate and talc. Bismuth subnitrate may be used with anaesthesin, the powder containing 5% bismuth subnitrate, 5% anaesthesin powder, 10 to 20% magnesium stearate and 70 to 80% talc. It is not advisable to add perfume, as it is liable to irritate the inflamed skin. A portion of the talc may be replaced by sterilized, white clay or titanium dioxide. A simple mixture may also be prepared from 25% of zinc oxide and 75% of a mixture of equal parts of talc and magnesium stearate.

Preparations in solid, liquid, and creamy forms are used for protecting the skin against the too strong action of the sun's rays. All these sun-tan preparations contain an active ingredient of some sort, which absorbs the actinic rays in light and thus prevents too severe action on the skin.

The most popular ingredients are quinine salts such as quinine hydrochloride, quinine bisulfate and quinine sulfate, and quinine oleate. Creams appear to be best suited. A cream may be composed of 25 parts quinine hydrochloride or sulfate, 100 parts stearin, 15 parts mineral oil, 15 parts sodium carbonate, 100 parts alcohol and 745 parts water. The quinine salt is first dissolved in the alcohol along with the perfume, and then the cream base, which contains water, stearin, mineral oil and sodium carbonate, is mixed. In another composition the cream base consists of 20 parts cod liver oil, 75 parts lanolin, 5 parts quinine hydrochloride. Lavender or geranium oil may be used to perfume. Another cream base is made from 4 parts gum tragacanth, 5 parts glycerin, 4 parts quinine bisulfate, 12 parts alcohol, and a solution containing one part citric acid in 64 parts water. It is claimed this cream will protect skin not only against excessive sunburn but also against freckles.

Four per cent. quinine bisulfate is added to another cream base containing 10% specially prepared base of the stearate or polysaccharide type as well as 18% of white petrolatum, 10% of mineral oil (specific gravity 0.870 to 0.875), also 10% of lanolin. The quinine bisulfate is dissolved in 48% water. Creams containing quinine bisulfate are apt to be acid in reaction and sensitive skins may be affected. Some authorities claim that quinine bisulfate is practically the only

(Continued on page 391)

Dr. Marston T. Bogert

Autoxidation of Aldehydes

Dr. Everett G. McDonough

By Marston T. Bogert and Everett G. McDonough[1]

Among the most important, and certainly the most troublesome of the organic chemicals used in perfumery, are the aldehydes. They are employed in blends of all kinds, and are generally regarded as indispensable for the production of the odors sought. Yet they are very susceptible to reactions and chemical changes which may and do alter markedly their original fine aromas. These changes are due primarily to oxidation, especially autoxidation, but also to polymerizations and condensations. Thus, oxidation transforms the bitter-almond scented benzaldehyde into the odorless benzoic acid, or the Chanel-like *n*-heptaldehyde into the hircin *n*-heptoic acid; phenylacetic aldehyde polymerizes very easily with loss of its fine hyacinth odor; both citral and citronellal are exceedingly sensitive to acids or alkalis, and the latter is changed to isopulegol even by the continued action of light. Aldehydes may themselves function as catalysts or as anti-catalysts in the oxidation, polymerization or condensation of other compounds, whether these other compounds are aldehydes or not.

Bogert and Davidson[2,3], in previous papers from these laboratories, have reported on an investigation of the comparative rates of oxidation of a number of aldehydes, and this research continues and expands that work.

Its purpose has been to study comparably the velocities of autoxidation of perfume aldehydes, alone and in the presence of other substances. It seemed necessary, in undertaking an investigation of this kind, that it should be, at the outset at least, technical and general in character, for the autoxidation velocities of aldehydes are influenced by many factors, some of which are not easily controlled. Such a preliminary general attack upon the problem, it was believed, would contribute (1) information of practical value to the perfumer, (2) data which might be of theoretical significance in elucidating the mechanism of autoxidation and of inhibition, and (3) the development of apparatus and methods which would prove serviceable in future more specific and more exact studies in the same field.

With this in view, the apparatus described and depicted beyond was designed, which permitted the simultaneous measurement of four relative rates under identical conditions, and a routine procedure was standardized.

An investigation was made of each aldehyde as to the effect of the following factors upon its oxidation rate: (1) daylight, (2) temperature, (3) addition of another aldehyde, (4) addition of organic compounds of other types, and (5) addition of such commmercial perfumery materials as essential oils, isolates, and some synthetics. A superficial examination of oxidation inhibitors was carried out, and an analytical process was devised for the determination of the acids formed in the oxidation of binary aldehyde mixtures.

The results secured to date may be summarized as follows:

1. Aldehydes used in perfumery, except salicylic, are subject to autoxidation both in daylight and in the dark.
2. Certain groups in the aldehyde molecule influence the autoxidation rate. Thus, the OH and OMe groups act as inhibitors, whereas the olefin bond in the cinnamaldehydes accelerates the rate.
3. The autoxidation of an aldehyde is influenced also photochemically, the daylight rate being considerably higher than that in the dark; with the exception again of the cinnamaldehyde types, where light appears to have little or no effect.
4. The temperature coefficients for the daylight and dark reactions are the same, within experimental error.
5. Tables are given to show the influence of one aldehyde upon the autoxidation rate of another. A comparison of the effects upon the daylight and dark rates lends further support to the assumption that the reaction mechanism is analogous in the two cases.
6. The effect of other types of organic compounds upon the autoxidation of the aldehydes, shows that the amino group exerts the most potent inhibiting action, followed by the OH compounds, the phenols being more

(*Continued on page 332*)

[1]Based upon the dissertation submitted by the junior author for the degree of Doctor of Philosophy under the Faculty of Pure Science of Columbia University.

What's New in Medicines

Foreign medicines continue to indicate the trend in therapeutics in the countries across the seas.

Aspro—Tablets. Each 0.42 gram, containing acetylsalicylic acid and di-methyl-aminophenyldimethylpyrazolon.

Diugrandine—Sodium theobromine acetate. N. V. Societeit voor Chemisch Industrie, Katwijk, Holland.

Iodtheodural—Tablets. Each contains 83 mgms. of potassium iodide, 417 mgms. of calcium theobromine salicylate. Same maker.

Theodural—Tablets. Each contains 240 mgms. of theobromine, 190 mgms. of salicylic acid and 55 mgms. calcium, the latter being combined with the acetylsalicylic acid. Same maker.

Bi-Ricine—Liquid mixture containing 0.4 gram of castor oil, 0.4 gram of magnesium oxide and 0.04 gram of phenol per unit dose. Cathartic. C. Roux, Malakoff (Seine), France.

Solmines Wuhrlin—Gauze compresses, impregnated with sterilized petrolatum at a temperature of 130° C., as well as peru balsam, vioform and dermatol. Treating burns. Wuhrlin et Fils, Hondouville, France.

Clonazone Daufresne—Sodium chloroaminotoluene. Disinfectant.

Asthmysine—Hypophysis extract with adrenalin. Ampulles. Lab. Prana, s'Gravenhage, Holland.

Cholperos—Vaccine from lysierated cholera bacilli for administration by mouth. For immunization against cholera. Sugar-coated pills. I. G. Farbenindustrie A.G., Frankfurt-am-Main, Germany.

Dysperos—Vaccine prepared from pysierated dysentery bacilli for administration by mouth. Treating bacillary dysentery. Same maker.

Genomorphin—Morphine-amino-oxide. Analgesic with same pain-stilling action of morphine but without stupefying effects. A. Beaugonin, Paris, France.

Shock Calarose—Ampulles. Each contains 30 cc. of sterile, invert sugar. For intravenous injection to obtain rapid saturation of blood vessel system. Used with isotonic sodium chloride solution. Chemische Fabrik Guestrow, Guestrow i. M., Germany.

Teersulfo-Derm.—Powder. Contains one per cent. of colloidal sulfur absorbed in silica gel and six per cent. coal-tar. Colored to resemble skin and perfumed. For eczemas, dermatonykoses, prurigo, etc. Chemische Fabrik von Heyden A.G., Dresden-Radebeul, Germany.

Tonaton—Cachets. Contain 2.2% extract of yohimbimus, 6% semen ignatii, 1.6% phenylmethylaminopropanol hydrochloride, 0.15% atropine-methyl nitrate, mixture of labiate extracts and 80% of disodiumhydrogen phosphate. Sexual tonic. Luitfeld Werke, Muenchen, Germany.

Tablette III—Contain extract of condurango, bismuth subnitrate, lactose, sodium bicarbonate and peppermint oil. For stomach troubles, heartburn, etc. Klosterlaboratorium Maulbronn, Maulbronn i. W., Germany.

Pneumitren—Contains 1.5 gram cresotal, 0.2 gram balsam Peru, 0.2 gram ichthyol, 0.01 gram camphor, 0.02 gram peppermint oil, 0.03 gram star anise oil. For colds and catarrhs. Dose, 20 to 30 drops thrice daily. C. F. Asche, Hamburg, Germany.

Kalbereri—Salve. Contains 16 to 18% zinc oxide, 82 to 84% petrolatum and balsam Peru. For all skin diseases. (See Pharmac. Acta Helvetia, volume 7, 1932, page 184). Pharmacie du Rond, Point de Planipalais, E. Raeberer, Genf, Switzerland.

Tucker's Asthma Medicament—Contains 1% cocaine hydrochloride, 0.1% atropine sulfate, 4% sodium nitrite, 30% glycerin, and vegetable extracts. For asthma. (See Pharmac. Acta Helvetia, volume 7, pages 188ff, 1932). Tucker, London, England.

Tumalex—Contains mainly enzymes from freshly precipitated carcinomae and sarcomae. Vaccine for treating carcinoma and sarcoma. (See Pharmazeutische Zeitung, volume 77, 1932, pages 1142ff). Tumalin G.m.b.H., Muenchen, Germany.

Tussivaccin—Pure vaccine, proposed for whooping cough and containing only the whooping cough bacillus in higher concentration than known mixtures of similar sort. Used intramuscularly and subcutaneously. (See Sueddeutsche Apotheke Zeitung, volume 72, 1932, page 642). Saechsisches Serumwerke A.G., Dresden.

Unibaryt—Contains barium sulfate, carbohydrates and aromatic chemicals and substances. Administered by mouth and by rectum for X-ray photography of organs of digestion. Roehm & Haas A.G., Chemische Fabrik, Darmstadt, Germany.

Lemwusan—Contains boric acid, balsam Peru, petrolatum, lanolin, water. For ulcus curris, decubitus, intertrigo, dermatitis, combustio, uriticaria, wet eczе-

(Continued on page 340)

Sulphonated Oils for Cosmetics

By L. D. Grupelli*

THOUGH sulphonated oils are by no means new to the cosmetic industry their special value for use in a wide variety of toilet preparations seems to have become generally appreciated only recently. During the past few years, research has greatly increased the number of applications of these oils in this field, and further study is constantly extending the list.

Among the properties of these oils which particularly interest the cosmetic manufacturer are the following:

They are miscible with water. Shake a small amount of raw oil with water in one test tube and a small amount of sulphonated oil with water in a second test tube. In a very short time the contents of the first tube will separate out into two distinct layers of oil and water. The contents of the second tube will have mixed into a stable emulsion. The oil in the latter case has been dispersed into very small particles, so small as to almost approach molecular proportions. Emulsions of certain oils can hardly be distinguished from true solutions.

Sulphonated oils lower the surface tension of water so as to give good spreading qualities. They are good emulsifiers and are used to emulsify all kinds of oils, greases and waxes. This emulsive capacity of sulphonated oils renders them extremely useful in the cosmetic preparations.

Another valuable property of sulphonated oils is their softening quality. By selection of the proper oils a distinctive softening effect is obtained on the skin and especially the hair.

By virtue of these properties, sulphonated oils can be used in cosmetics of many different kinds. These products are especially effective in cleansing, softening, etc., they can be easily rinsed off with water, and they can be made up with water taking the place of alcohol as a solvent, either completely or in large part. For certain types of cosmetics, therefore, the use of sulphonated oils improves quality and efficiency and reduces the cost of manufacture.

Almost all vegetable and animal oils can be sulphonated, but the two almost exclusively used in toilet preparations are castor oil and olive oil. They are sulphonated by mixing them with strong sulfuric acid and then washing the product and neutralizing it with caustic or ammonia. The result is a clear, viscous, "oily" liquid which is miscible with water in all proportions.

The degree of sulphonation, the fineness of the oil particles in emulsion, the pH of the oil, the color, and other properties vary with the details of the sulphonating process and the grade of raw materials used. In other words, these oils are not exact chemical compounds but rather represent steps in an infinite range of products. It is, therefore, most important for a cosmetic manufacturer when contemplating the use of a sulphonated oil to consult the oil manufacturer in regard to his problems in order to insure obtaining the grade of oil best suited to his needs. Research, in fact, may often be needed to determine the proper selection.

Sulphonated castor oil and sulphonated olive oil closely resemble each other in outward appearance, but the castor oil is miscible with alcohol, while olive oil is not; it retains its clarity under conditions which cause olive oil to become cloudy; and, of course, it is cheaper. Hence it is used most extensively in the cosmetic field, but for certain purposes olive oil is superior.

Because of the softening and emuslifying properties, sulphonated oils are used in brushless shaving creams, hand lotions, cold creams, cleansing creams, soapless shampoos, etc. They are added to a variety of tube products to prevent hardening of the product in the tube, and especially to dentifrices as they tend to dissolve the tartar film and seem to prevent further formation. They are also employed in antiseptic mouth washes, hair fixatives, permanent wave preparations, lip stick, and dental floss.

By their use perfumes and other oils can be made miscible with water and advantage of this fact is taken in the preparation of the perfumed sprays now being used in many theatres. A growing application is in connection with liquid soap—a certain amount of a sulphonated oil added to liquid soap greatly improves its cleansing power.

In addition to plain sulphonated castor and olive oils, numerous combinations of these and other sulphonated oils with various oils and waxes are prepared by manufacturers of processed oil to serve a variety of special purposes in the cosmetic field. The number of such products is constantly growing, and progressive cosmetic manufacturers keep closely in touch with these new developments.

*National Oil Products Company, Harrison, N. J.

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Aldehydes in Perfumery

By Dr. Victor G. Fourman*

THE strong and often pleasant odor of aldehydes has made these substances of great importance to manufacturers of synthetic perfumes. A number of aldehydes so used are aromatic in the chemical sense, for example, anisic, cinnamic, and hydrotropic aldehydes. The aliphatic aldehydes have distinct aromas but as they are not benzene derivatives it is incorrect to refer to them as aromatic. There are three important general methods for the preparation of aldehydes:

(1) The corresponding alcohol may be oxidized:

$$R.CH_2OH \longrightarrow R.CHO + H_2O$$

(2) The barium or calcium salt of the acid may be distilled with barium or calcium formate:

$$\begin{matrix} RCOOca \\ HCOOca \end{matrix} \longrightarrow RCHO + CaCO_3$$

(3) Aldehydes are often obtained from the essential oils in which they occur. The separation is accomplished by shaking the oil with a concentrated solution of sodium acid sulfite. The solid addition-product which is formed is filtered off and washed with ether or with some other solvent suitable for removing the oil adhering to the compound. The thoroughly washed solid is then decomposed by warning it with a solution of sodium carbonate. The liberated aldehyde is separated from the aqueous solution or extracted with ether. The yield obtained by this method is not always satisfactory. If aldehydes other than the one desired are also present in the essential oil it is not possible to make a complete separation since practically all of them form solid bisulfite addition-products which are more or less insoluble in water.

These facts explain why in a number of cases the pure aldehydes are obtained by synthetic methods rather than by isolation from the essential oils in which they occur. We can begin the study of aliphatic aldehydes arbitrarily with the so-called C_7 aldehyde, as those having less than seven carbon atoms to the molecule are too fruity in character to be of much service in perfumery. The seven carbon aldehyde is known to the chemist as heptylic aldehyde or heptanal, and to the perfumer as oenanthal. It is manufactured by distilling castor oil under reduced pressure. It is an oil having a strong fruity odor but more floral than C_6 aldehyde. Traces of heptylic aldehyde yield interesting results in perfumes of the oriental type—exotic odors such as those used in incense.

The next higher aldehyde in the aliphatic series has eight carbon atoms. It is called octyl aldehyde. This substance is a natural constituent of neroli, lemon-grass, orange, jasmin, rose, and other oils. It has a honey-like odor which makes it useful in rounding off heavy-odor perfumes. No one can hope to produce a true jasmin type, for example, without a "dash" of octyl aldehyde. It is obtained by the dry distillation of the calcium salts of caprylic and formic acids. Formic acid is a common enough chemical commodity nowadays, but it is necessary to isolate the caprylic acid from cocoanut oil. Nonyl or pelargonic aldehyde (C_9) belongs to the orange and rose type of perfume. It is more fatty than C_8. It is used as a modifier in a long list of odors but only in small amounts; the finished flower oil or concentrate usually does not contain more than one per cent. of nonyl aldehyde. Some of these concentrates are geranium, rose, tuberose, and carnation. Traces of it are also found in bergamot, neroli, and iris. When pelargonic acid, obtained from castor oil is esterified, and the ester reduced with sodium to nonyl alcohol by the Bouveault-Blanc method, we obtain the material from which the aldehyde is finally derived. The last step in the process consists in the oxidation of the nonyl alcohol with chromic acid mixture.

Decyl or C_{10} aldehyde is also a constituent of rose, orange and other oils. To the chemist it is known as capric aldehyde and in modern nomenclature as decanal. It has an orange to rose tone. It is not as sharp as the aldehydes having fewer carbon atoms nor is it as fatty in character as the higher aldehydes. It is no doubt the most useful member of this series for many flower bouquets as it has a "clean" odor. With various other constituents it is used to reproduce rose, neroli, cassie and orange. Jasmin and a number of colognes owe much of their outstanding qualities to this aldehyde. As in the case of many aldehydes of the aliphatic series, the amount used is seldom more than one per cent. of the finished flower oil but one must not conclude that it can be dispensed with because of the small quantity used.

The aldehydes citral, citronellal and hydroxycitronellal also contain ten carbon atoms to the molecule. However, while decyl aldehyde is saturated, citral has two double bonds and citronellal has only one. In general, the more saturated the substance the greater is its stability towards heat, air and various reagents. Citral, in spite of its tendency to become oxidized and to form polymers, is one of the most important aldehydes in the perfume industry. It has a strong lemon odor. In orange, bergamot and verbena compositions

(*Continued on page 350*)

*Chief Chemist, Compagnie Parento, Croton-on-Hudson, N. Y.

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The Compounders' Corner

Chlorate Dentifrices

Difficulty with all dentifrices containing active ingredients which depend upon a chemical reaction for their effectiveness, is that the dentifrice does not generally remain long enough in mouth or in contact with teeth and gums to permit completion of chemical reaction. It takes a certain amount of time for chemical reaction to occur and for chemicals to react with film and other substances that contaminate and coat teeth and cause bad breath, etc.

It has been proposed that dentifricial preparations, containing potassium chlorate, be compounded with catalysts, such as the compounds of vanadium, manganese, uranium, platinum and other members of the platinum group of metals. Such procedure permits reduction of proportion of potassium chlorate in dentifrices and is claimed markedly to increase bactericidal properties. Catalysts are admixed with dentifrice by first being dissolved in water or made into suspension. Dentifrice may have an acid, neutral or basic reaction, although acid-reacting preparations are preferred. A tooth paste contains 0.5% gum tragacanth, 30% glycerin, 22.4% water, 7% potassium chlorate, 40% precipitated chalk and 0.1% ammonium vanadate. Mouth wash contains 15% solution sodium chlorate in 30% alcohol to which ½% vanadium chloride is added.

Colorable Powder Bases

Certain combinations of substances are advantageously used as bases in compounding powders which may be colored to any desired shade at will. One composition contains 45 parts rice starch, 45 parts triticum starch, 1.5 parts boric acid, 4.0 parts orris root and one part perfume. Another contains 100 parts precipitated chalk, 30 parts triticum starch powder, 80 parts rice starch, 150 parts talc and 60 parts sodium perborate. Titanium dioxide may also be used in making these powder bases, as follows:—1,000 parts talc, 100 parts beryllium carbonate and 60 parts titanium dioxide. Use of beryllium carbonate is interesting, although just what properties are obtained by using this rather expensive chemical is not described. In another preparation 125 parts titanium dioxide are mixed with 100 parts silica powder, 150 parts rice starch, and 200 parts talc. Still another contains 350 parts magnesium carbonate, 250 parts sodium perborate powder, 30 parts zinc oxide and 20 parts pulverized lycopodium. Suitable colors for coloring these powder bases include reddle, burnt yellow ochre, tumeric yellow, carmine. If a fatty powder is desired, this can be obtained by admixing 2% of lanolin.

Solid Eau De Cologne

The solid mass in this preparation is really a soap which is made while compounding the preparation. Thus, 8.5 parts stearic acid are dissolved in 50 parts 90% alcohol. Then 1.3 parts sodium hydroxide are dissolved in 40 parts water. The two solutions are mixed and heated slowly until clear liquid is obtained. Essence of eau de cologne is added, but liquid must be cooled to avoid vaporization of oils, but not to a low enough temperature to allow liquor to congeal. After oils have been thoroughly mixed with base, entire mixture is poured into molds and allowed to cool. An excellent product is obtained.

Oxygenated Mouth Washes

Principal condition that must be met in compounding oxygenated mouth washes or rather mouth washes which contain oxygenated compounds is that preparations must not deteriorate before use. They must not lose oxygen. It is suggested that good results are possible with following combinations. In first preparation 2,250 parts alcohol are mixed with 10 parts star anise oil, 25 parts eucalyptus oil, 2,750 parts water and 75 to 100 parts 30% hydrogen peroxide. In second preparation 70 parts alcohol are mixed with 15 parts 30% hydrogen peroxide, 100 parts water, 0.25 part saccharine, 0.75 part menthol, 0.75 part thymol and 0.2 part star anise oil. Third preparation does not contain alcohol but 300 parts chamoile concoction, 80 parts glycerin, 15 parts chlorinated water, two parts sodium biborate, 70 parts distilled water and 30 parts spirits of cochlearia. Various aromatic substances may be added, such as anerthol, bornyl acetate, eucalyptol, anise oil, pine-needle oil, star anise oil, thymol and menthol. Tests have shown that most other oils are destroyed or changed in preparation.

Medicated Baby Powders

Baby powders must be more than body powders; they must contain some antiseptic both safe and effective. A number of compositions are given herewith as suggestions. Base is kaolin and talc, each 100 parts, mixed with 20 parts chloride of silver silica gel. Mixture possesses high adsorptive powers and is claimed to be safely disinfecting. It is non-poisonous, does not irritate tender skin, is odorless and does not lump. Starches should not be used because starch forms a paste which becomes acid. Another composition is three parts bismuth subgallate, five parts each of boric acid and zinc oxide, 20 parts talc, 67 parts kaolin and sufficient iodine to obtain desired odor. Very simple composition consists of 100 parts talc, 20 parts orris root and five parts zinc oxide. Powder that adheres well is obtained by first dissolving 20 parts lanolin in 150 parts chloroform. Solution is then well mixed with 150 parts burnt magnesia. After mass has dried, it is screened through fine sieve. This is mixed with 150 parts kaolin, and perfumed with mixture of rose oil, bergamot oil and tincture of musk in equal parts.

Soapless Shampoos

Too frequent shampooing of hair with soap and water does it no good. Once in a while it is essential to use a soap shampoo and between times it is recommended that a soapless shampoo be employed. This has opened a field for soapless shampoos for both oily and dry scalps. Soapless shampoos must not contain more than 65% alcohol, as too much alcohol irritates the secabeous glands. Suitable soapless shampoo for oily scalp is made from two parts tannic acid, 60 parts alcohol, 40 parts water, and perfume as desired. This shampoo will remove dirt and oil effectively. For dry scalps:—six parts sulfur, 34 parts cocoa butter, 20 parts peanut oil and perfume as desired. This is a salve which is applied to hair after soapless hair wash has been used. It is possible to emulsify a mixture of the shampoo with the fatty materials by using proper emulsifiers, but it is more advisable to use the shampoo and the salve separately.

Knee Pine Oil in Cosmetics

A number of preparations can be compounded with knee pine oil, which has not only an attractive and refreshing odor but also an antiseptic and invigorating action. It may be used in tooth pastes according to following formula:—5,000 parts precipitated chalk, 205 parts infusorial earth, 300 parts gum arabic, 125 parts pine oil, 2,000 parts glycerin, 400 parts potassium chlorate and 1,500 parts water. Powders are first mixed in very fine form and then worked into paste with glycerin and finally entire mass is thoroughly mixed.

Creams for skin and hands may also be made with knee pine oil. Thus sali-

VIOLET

Violet compounds and odor-complexes with the Violet character predominant are rapidly increasing in favor. We will gladly offer suggestions as to the use of the following basic materials in compounds of this type.

Methyl Heptine Carbonate
Musk Xylene
Methyl Ionone
Iris Concrete
Cedarwood Redistilled
Bergamot Italian
Violet Feuilles Absolute

Should you require a finished blend, we suggest the following Compounds developed and produced under expert supervision in our Laboratories with the fine raw materials for which we are so well known.

Violet J
Violet Leaf D
Violet 658
Violet Fragrance
Violet de Grasse

COMPAGNIE PARENTO, Inc.

EXECUTIVE OFFICES AND LABORATORIES
CROTON-ON-HUDSON, N. Y.

NEW YORK
507 FIFTH AVENUE

TORONTO, ONT.
73 ADELAIDE ST., W.

cylated suet may be mixed with 1% of oil, or cream may also be made from deer tallow. A formula calls for 270 parts petrolatum, 30 parts spermaceti, 100 parts almond oil or sesame oil, 200 parts suet, 80 parts water and 20 parts knee pine oil. Suitable base is also a mixture of suet, petrolatum, lanolin and peanut oil which is mixed with 1 to 5% of knee pine oil. Cream may also contain antiseptic ingredients, such as 1% salicylic acid and 3% boric acid.

Bath emulsions are made with knee pine oil, for this oil is claimed to have a highly beneficial action on the skin through benign irritation. Composition of bath emulsion may be as follows:—64 parts lanolin, 80 parts glycerin, 120 parts water, 25 parts tincture of benzoin, 40 parts gum arabic mucilage, three parts oleum pinus sylverstris and four parts knee pine oil (oleum pinus pumilio). First lanolin, glycerin and water are mixed and melted and then gum arabic mucilage is added and vigorously mixed, and finally other ingredients are added. Another type of bath emulsion is made by shaking one part gum tragacanth with ½ part medicinal soap and then 10 parts alcohol are added. Five parts knee pine oil are dissolved in 15 parts alcohol and the two solutions are mixed with vigorous agitation. Then 70 parts water, previously heated to 30 to 35° C., are added in small portions. Fluorescein is used to color.

Knee pine oil is also used in making face lotions and like. One composition contains one part rosemary oil, four parts knee pine oil, 10 parts alcoholic solution of ammonia, 40 parts camphorated alcohol, 40 parts alcoholic soap solution and 65 parts alcohol. Solution is filtered after mixing. In another preparation 100 parts cayenne pepper, 100 parts arnica flowers, 150 parts camphor and 20 parts oil of turpentine are extracted with 4,000 parts alcohol and 1,500 parts ammonia water for about eight days. Then 300 parts knee pine oil, dissolved in 500 parts ether, are added to the extract, and finally 7,000 parts water are admixed. This preparation must be shaken before use. A final and simple composition contains two to three parts knee pine oil and 100 parts camphorated alcoholic soap solution.

Tragacanth in Cosmetics

Gum tragacanth possesses the useful property of swelling in water to a gelatinous mass and hence forms an excellent medium for making a variety of cosmetics, including skin lotions, depilatories, dental creams, shaving lotions, nail polishes, skin creams, toilet milks, hair lotions and tonics, permanent hair wave preparations, etc. It is also used as a binding agent and in making greaseless creams and hair pomades. Gum tragacanth is used in powder form and from 2 to 5% is added in pasty preparations and about 1% to liquid products. An example of use of gum tragacanth in hair pomades is as follows:—12 parts gum tragacanth are mixed with 100 parts perfumed alcohol, 50 parts glycerin and 838 parts floral water. Gum is first mixed with some alcohol and then balance of alcohol is added. Thereafter, water is added quickly with strong agitation and mixture passed through sieve. About 20 to 25% of colored mineral oil is sometimes added and emulsified with rest of ingredients. Skin cream is made from 15 parts gum tragacanth, 70 parts perfumed alcohol, 20 parts tincture of benzoin, 140 parts glycerin and 725 parts water or rose or orange water. About 35 parts sweet oil of almonds is emulsified with mixture. Glycerin-containing creams are made from 22.5 parts gum tragacanth and 175. parts bismuth oxychloride, and mixture is thoroughly triturated with 300 parts glycerin. Then 660 parts rose water are added. Mixture is perfumed and filtered. In depilatories, 30 parts gum tragacanth are vigorously mixed with 88 parts glycerin to obtain perfectly smooth mixture. Then mixture is diluted with 530 parts triple rose water. Depilatory proper is added, such as solution of sodium sulfide or better strontium sulfide in 50% concentration. Mixture must be well agitated. Proportion of sulfide will vary according to nature and to strength of preparation desired. About 176 parts sodium sulfide in equal amount of water is suggested. Final mixture is filtered to obtain perfectly smooth preparation free from lumps of undissolved particles.

Metallic Soaps in Cosmetics

Regulations in Germany against use of zinc stearate have been removed. Experimental study by German authorities have established the harmlessness of this substance and its use in skin creams, massage oils, face washes and powders has been sanctioned, provided it does not exceed a certain maximum percentage. Copper stearate has also been approved for the same purposes, provided the copper stearate does not produce a color effect. Zinc stearate is used by German compounders at 3 to 5% in face powders. French products contain as much as 12% and in one case 27%.

Aqueous Fatty Creams

For liquid fatty creams, containing considerable proportions of water, so that the creams are similar in appearance to honey-almond oil creams and always remain liquid, use 110 parts salve base with 15 parts beeswax, 25 parts ceresin wax, 40 parts mineral oil, 60 parts glycerin and 750 parts rose water. In another composition 65 parts almond butter are mixed with 60 parts clarified honey, 1,000 parts water, 65 parts almond oil, 65 parts beeswax, 65 parts spermaceti and 65 parts medicinal soap. Also 400 parts rose water, 45 parts stearin, 4.5 parts potassium carbonate, 75 parts glycerin, 375 parts water and 15 parts benzaldehyde.

Mentholated Hair Lotions

These lotions should contain only a little alcohol. They may be made lathering or not. Non-lathering lotion contains 150 parts alcohol, three parts menthol, 80 parts water, 1.2 parts lemon oil, one part bergamot oil, 0.65 part petit-grain oil, and 0.4 part pennyroyal oil. In another composition are contained 600 parts alcohol, 1,400 parts water, eight parts bay oil and one part menthol. Preparation giving lather contains 500 parts alcohol, eight parts menthol, 260 parts water, 250 parts radix saponariae (1:10), 715 parts potassium carbonate, 20 parts glycerin, 2.5 parts lemon oil, 3.1 parts bergamot oil, 3.5 parts lavender oil, and 0.65 part neroli oil. If non-lathering preparation is desired, the radix saponariae and potassium carbonate are omitted and proportions of water and alcohol increased.

Slow-Drying Hair Oil

Complaints sometimes arise that hair oils, used to smooth the hair, dry too slowly, particularly when hair is oily. Such hair preparations are made from gum tragacanth, glycerin, benzoic acid and water. What actually happens is that the oily hair does not absorb the preparation. This difficulty can be overcome by addition of small amount of wetting agent. Good results can be obtained with sulfonated castor oil.

Chromic Acid in Deodorants

Chromic acid is suggested for preparations to counteract excessive perspiration with the purpose of avoiding odor. It is highly effective, but many people are adversely affected by it. It is necessary to exert great caution in compounding these substances. Preparations, which contain formaldehyde or hydrogen peroxide, are preferred. The formaldehyde odor can be successfully hidden by using the proper perfume bouquet.

Preparing Emulsions

Many cosmetics must be made in emulsified form. It is frequently necessary to mix oil and water into a homogeneous mixture. Good results are obtained with emulsifiers which are esters of low molecular weight fatty alcohols, which contain at least one free hydroxyl group. Examples are the glycol esters of high molecular weight fatty acids. These emulsifiers are easily used and can be mixed with solid or liquid substances, such as perfumes, essential oils, alcohols and the like, before they are introduced into the fatty mixtures which are to be emulsified. For example a good emulsion of glycerin can be obtained by use of glycol monostearate which is used along with potassium stearate. Triethanolamine stearate may also be used with glycerin monostearate. This mixture gives good results with petrolatum.

A Package Check List

So much has been written about packaging that it is difficult to sort out the essential points. For those reconsidering their packaging problems we present the main points in concise form.

SO MUCH has been written about packaging, so many diverse and often contradictory statements are made in regard to the importance of the several features and purposes of the package, that we here present a check list by which the efficacy of a package from all stand points may be judged. While the importance of package design is very great, yet it must be admitted that the present hysteria has overemphasized its value and obscured the true place which packaging must always hold in the merchandising and production scheme. A beautiful package will not long sustain a poor product; an uneconomical package, regardless of consumer appeal, will not maintain profits.

The package is at once the consumer unit and the production unit and as such it should be judged. The question at once poses itself as to which phase of packaging shall be given preference in pre-judging the package:—the production phase or the consumer phase. To some extent this depends upon the price at which it is sold and the underlying margin of profit. But there is a common denominator which is just as important to one phase as another, and which applies regardless of price, profits or production methods, and that common denominator is *protection*. Protection of the contents transcends every other consideration and must be provided for first, the degree of protection given being determined of course by the nature of the product. Protection means more than mere sealing. It also includes the examination of container materials with a view to eliminating those subject to chemical reaction with the product. No package is suitable for every product. With this in mind the following check list is compiled to aid in the prevention of errors:

PROTECTION . . . *As to container materials*

1. What is the chemical and physical nature of the product? 2. Will it attack glass, plastics, tin plate, block tin, aluminum, paper, cork, rubber, copper, brass, nickel, wood? 3. Is it light sensitive? 4. Is it hygroscopic? 5. Is it highly volatile? 6. Does it tend to seep? 7. Does it harden or thicken with age? 8. Does it tend to change color with age? 9. Is it stable? 10. Is it sensitive to heat or cold? 11. Does it separate on standing? 12. Does it require refrigeration?

PROTECTION . . . *As to sealing*

1. Does the product require a hermetic seal? 2. How rapidly must it be sealed after filling? 3. If not designed to be consumed at once can the package be resealed as tightly as when it was first sealed in the plant. 4. Does the product require any extra sealing precautions such as auxiliary sealing or carbonization?

PRODUCTION

1. What capacity per hour is required? Must the package be assembled by hand or is it adapted to mechanical handling? 2. Does the shape of the container lend itself to rapid cleaning by means of air or water? 3. Is the shape such as to allow uniform distribution of glass with consequent wall strength? 4. Can the container be filled easily? 5. Is the neck of the bottle long enough so that the skirt of the closure will not strike the shoulder before having been driven fully home? 6. What is the shape of the label panel? 7. Does it present a smooth unbroken surface so as to permit easy labeling? 8. If the container has an embossed design motif or a name, is the embossing so situated so that it will not be necessary to have an extra girl at the belt to turn the containers in order that labels will match up with embossing? 9. Is the shape of the container such as to allow it to travel on the conveyors without tipping? 10. Has the container any convolutions or projections which will tend to throw it out of line as it passes into processing equipment? 11. If the container is slightly broader than it is thick, have these proportions been adjusted so that there is no danger of a container entering a processing equipment cocked—that is, turned at an angle so that the labeling centers are out of line? 12. Is the shape of the container such that it will center up exactly when in the capping or labeling station—or will a slight turn throw it out of line?

13. Have you tested the selected closure to determine its sealing efficiency? 14. Is the liner of the proper material and the right thickness? 15. Are the threads of the container and of the closure full formed and deep so that the liner will be seated uniformly and with equal pressure on all sides? 16. If the closure is domed, are you sure that it will not spread like an umbrella when pressure is applied? 17. Will the finish of the closure withstand mechanical handling? 18. If there

is a name or trade-mark on the closure is it so arranged as to obviate the necessity of turning the container before labeling to insure line up as between reading matter on closure and on label? 18. Is the liner glued or locked into the closure so that it will not fall out or ride up on the threads and thus cause breakage or crooked capping? 19. If the closure is of plastic material are there any debossed lines or design motifs on its exterior surface which tend to rob it of lateral strength, or has such debossing been compensated for by increased wall thickness?

20. Of what material is the label made? 21. Can it be applied mechanically? 22. What is the shape of the label? 23. Will its shape allow it to be held in the label magazines without turning? 24. Has it any projections which would inhibit rapid labeling? 25. If it is embossed, is the embossing shallow enough so as not to lock the labels together in the magazines? 26. Is the stock light enough to lay on the container after application or will it spring back and require a girl or a pressure device to hold it in place until the adhesive sets? 27. Are neck bands employed? 28. If so is the neck of the container long enough to allow them to be applied mechanically? 29. If extra labels are used, are they so situated that all can be applied simultaneously? 30. If the label is a wrap-around type is the container surface free from depressions, ridges and mottling which would tend to trap air and dry the adhesive, thus causing preventing adhesion of the label? 31. Are all labels free from frayed edges? 32. Are they die cut?

33. If the container requires a carton is the carton die cut, free from glue beads, irregular edges and uneven seams all of which would cause complications in cartoning?

34. If the container is also to be wrapped is the wrapping material non-hygroscopic and free from excessive static electricity? 34. Will the wrapper withstand strain and resist drying out which would tend to crack it? 35. If a design appears on the wrapper is it so arranged as to facilitate registry?

THE CONSUMER PHASE . . . *Convenience*

1. How is the product administered? 2. If taken with a spoon is the mouth of the container wide enough to allow a spoon to be thrust into it? 3. If not can the substance be poured easily and without smearing the thread ring? 4. Can the container be handled easily? 5. Will it fit into the medicine chest or dressing table? 6. Can the closure be removed and replaced easily?

THE CONSUMER PHASE . . . *Appeal*

1. Does the color scheme and the design identify the product with a group or with a complete line? 2. Are the colors harmonious and easy to look at and to live with? 3 Is the entire design considering shape and size of container, closure, colors and artistry individualistic? 4. Is the design such as to make the package easy to remember? 5. Can it be identified on a crowded store counter or shelf from a distance of thirty feet? 6. Can it be identified regardless of how displayed? 7. Has the package any re-use value?

GENERAL REQUIREMENTS

1. Is the package economical as to cost of packaging materials? 2. Will it effect economies in production? 3. Is the copy clear, concise and unmistakable? 4. Does the copy conform to federal regulations respecting the particular type of product?

Industry's Books

Bibliographical Survey of Vitamins, by Mark H. Wodlinger, 334 pages, published by Mark H. Wodlinger, 86 E. Randolph st., Chicago.

The ever-increasing number of workers in this and related fields will find this an invaluable work. It covers in chronological order the literature on the subject of vitamins from 1650 to 1930 inclusive. Into its compilation went the literature of all the best library facilities in this country and abroad. A total of 11,338 references on the subject, including 210 on patents, is herein presented in easily available and usable form. Manufacturers in this industry should find this book an indispensable addition to their reference libraries.

Vitamins—A Survey of Present Knowledge, compiled by the Medical Research Council and the Lister Institute of London, Eng., 332 pages, British Library of Information, 270 Madison ave., New York.

The work of this body and the reports published in 1919 and 1921 are by this time well known. However, fresh advances in knowledge have made complete revision necessary again. This new revision, however, is much more complete and the report now presented is an entirely new presentation of current knowledge and of technical methods in the subject of vitamins. An appendix to the present work gives a report of the International Conference on Vitamin Standards containing international standards, together with definitions of units of activity in terms of the standards for use in quantitative estimation of the vitamin, which standards have been adopted by the League of Nations.

The Ability to Pay for Medical Care, by Louis S. Reed, 107 pages, University of Chicago Press, $2.00 net.

In this report the costs of medical care are viewed in relation to other costs of living and to income with a view to determining whether people are able to pay the costs of medical care which they now receive and whether they are able to pay the costs of reasonably adequate medical care. An interesting study of expenditures for medical service in relation to other costs of living.

Quinine Requirements of Malarial Countries and World Prevalence of Malaria, by the Health Organization of the League of Nations, 87 pages, World Peace Foundation, Boston, 75 cents.

This report deals with the prevalence of malaria, the number of cases treated annually, the total amount of quinine or secondary alkaloids imported, and the amount of quinine required annually by the governments of the world to meet the needs of their countries.

Biological Standards, by the Health Organization of the League of Nations, 78 pages, World Peace Foundation, Boston, 40 cents.

A general outline of the work of the League's Permanent Commission of Biological Standardization followed by reports on the adoption of a standard for gas-gangrene antitoxin, on standardization of toxins used for the Schick test, on the conference on vitamin standards, and a questionnaire concerning cases of diphtheria ending fatally in spite of treatment by serum.

Seven new flower odors,—jasmin, lilac, lily of the valley, rose, carnation, mimosa and violet,—have been added to the Prince Matchabelli line of perfumes. Two size containers, the small square purse flacon and the one ounce round bottle with frosted cut glass stopper, carry the characteristic Matchabelli seal.

An innovation in ethical drug packaging is this new molded box for "Chlorosalsterol," a therapeutic tablet of high vitamin and mineral salt content extracted from fresh plant tissue, soon to be announced by Salsterol Laboratories, Boston.

A long necked flask for eau-de-Cologne is the latest addition to the Lucien Lelong line. The neck has a silver wrap around label with the Lucien Lelong name and trade-mark in black, and is topped with a sprinkler cap.

The latest addition to the Ormont line is the "Shaving Cream de Luxe." This is a lather cream, attractively packaged in the new emerald-green jar with a green and brown label.

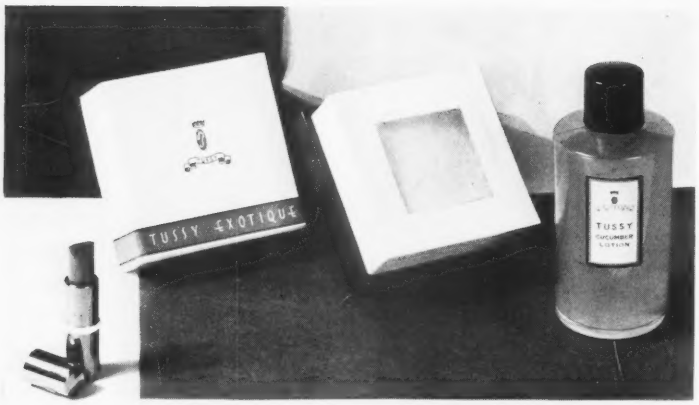
National Oil Products Co. has made one of the most startling package changes in month on its popular "Admiracion" soapless shampoo. The result is the very distinctive and dominating package shown here.

Four new floral perfumes by Rallet, Giroflee, a spicy carnation; Rose, made from the white rose; Muguet, a lily of the valley; and jasmin, are complemented with a dusting and face powder. The powders come in Muguet and jasmin odors; the shades are blanche, chair, rachel, fonce and naturelle. The boxes are white with bouquet decorations.

A square white box with four cut out *pockets holding strawberry cream, facial oil,* make-up lotion and powder, is offered by *Kathleen Mary Quinlan as an introductory* package in connection with sales promotion *only. All are in smaller size containers* than regularly sold by Miss Quinlan.

Among the several new and newly packaged items of the Egyptian Cosmetics Corp. are the beauty mask and a cream, not a liquid, peach astringent. The white opal jars with Egyptian labels in bright blue, orange and white are topped with black plastic caps. The three shown here are strawberry plastic creme, beauty clay and cleansing creme. Turtle Oil salve is also an interesting item of the line.

Hennen Products is merchandising these new products on the basis that "the daily practice of mouth cleanliness is the best protection for tomorrow." The company is operating on an ethical basis and makes no exaggerated or unwarranted claims, claiming only that the products are safe, mechanical cleansers, preventive in nature.

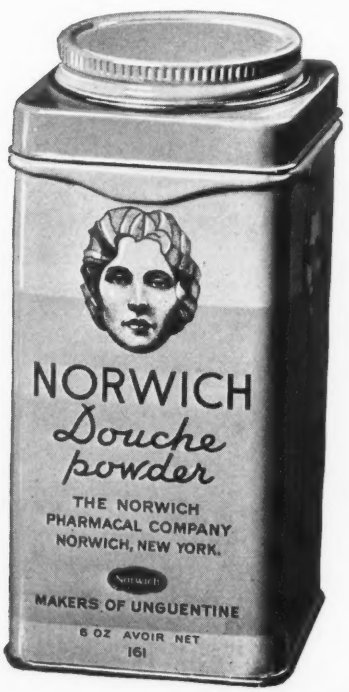


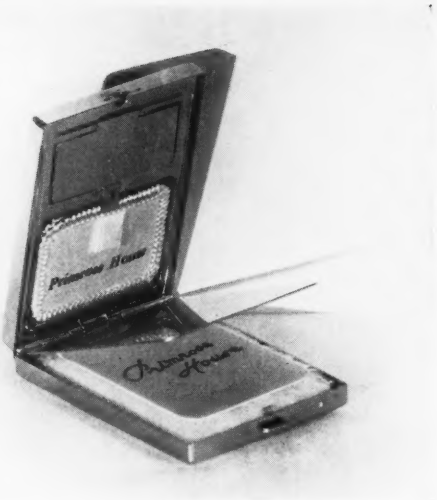
Lesquendieu's improved cucumber lotion, a smooth, non-greasy, green preparation, is shown in its new round bottle with typical Lesquendieu label. The powder box with black base and ecru cover with Tussy trademark and other decorations in red, and a new indelible lipstick in a gun metal case are new packages. A new powder shade, tea rose, has been added to the five powder shades.

Now Noxzema may be obtained in tubes for shaving. This well-known product is recommended either for a latherless shave or as a base for lather. Special emphasis is placed upon the local anaesthetics and antiseptics contained in "Noxzema" which are said to be of special benefit in a shaving cream. The packages are most attractive and carry out the familiar blue and gold "Noxzema" colors.

Ivory and gold, ivory with black band, gold with silver band and gold with black band are the four combinations of the new Caron loose powder vanities fitted with swansdown puffs. Fitted into one end and removable without opening the case is the lipstick. Refills of the lipstick may be obtained.

Here is Norwich douche powder in its handsome container of two-tone blue, featuring one of the famous heads by Hans Flato. This product—an especially prepared douche powder for feminine hygiene—makes an excellent companion product for "Norforms," the Norwich suppository.

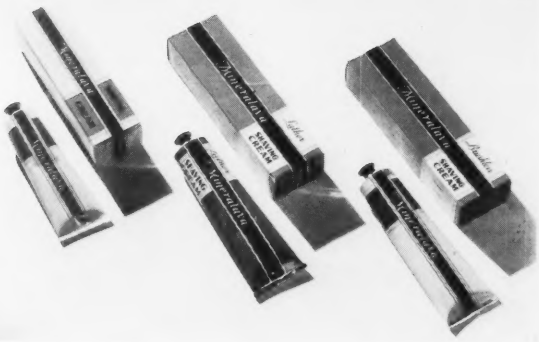




The new triple vanity of Primrose House is unique in its method of refilling. The entire metal fitting lifts up permitting of the rouge, both dry and paste, easily slipping into place. The powder comes in naturelle, beige and brunette and the rouge in raspberry, medium and light. The outer case is typical of Primrose vanities, black with silver decorations.

Five powder shades are included in the Orgia line of Myrurgia: Morisco, Rachel, Naturelle, White and Ochre Rose. The odor predominant throughout is a flower bouquet with sweet pea the most prevalent. The round box of red and white has an oblong cellophane window in the bottom to afford a view of the powder.

"Norwich Nasal Jelly," a new product recently added to the Norwich line, contains ephedrine and is made with a specially prepared base which makes it unusually pleasant and easy to use.



The first of the Mineralava line are now available—a dental cream, a brushless shaving cream and a lather shaving cream. The black-and-white picture fails to do justice to the attractive design and color combinations used on the tubes and cartons, which is in cream, red and black.

The Carr-Lowrey Glass Co. is now making these attractive one-dram perfume dispensing bottles. These are made by automatic machinery and are available with varying types of closure as shown.

Autoxidation of Aldehydes

(*Continued from page 312*)

active than the alcohols. Tertiary alcohols, ketones or esters, have but little effect upon the rates. Acids, especially hydroxy acids, act as inhibitors.

7. The results obtained with the butyl alcohols support the conclusion that ease of oxidizability and inhibiting action are directly related where alcohols are the inhibitors.

8. The relative effect of these added chemicals upon the daylight and dark autoxidation velocities furnishes another indication that the reaction mechanisms are either identical or closely similar.

9. The result of adding commercial perfume materials (essential oils, etc.) to the aldehydes, was a marked reduction in the autoxidation velocities, except in a few cases (notably the pure synthetics).

10. Diphenylamine is the most powerful inhibitor of those tested. Aniline-ethanol, pure aniline and sulfur, were also very effective. Diphenylamine and aniline, unless present in sufficient quantity to prevent oxygen absorption, color the solution a deep purplish pink, presumably due to an induced oxidation to the quinoid forms.

11. Determination of the acid content of binary aldehyde mixtures after autoxidation, indicates that the aldehydes are oxidized in proportion to their concentration.

12. The peracid is formed from the aldehyde during autoxidation and subsequently reacts further with it. As the oxidation continues, the concentration of the peracid increases.

13. The autoxidation of the aldehyde is accomplished by the evolution of carbon dioxide, except in the case of the benzaldehyde types.

14. Wall poisoning is not the primary cause for the decrease in the rate of oxygen absorption with time.

Theoretical

With the exception of the work of Bogert and Davidson[2,3], to which we have already alluded, the perfume aldehydes as a group have not been studied from the standpoint of their autoxidation, so far as we are aware. Individual aldehydes, of course, notably benzaldehyde, have received attention, chiefly in connection with researches on the mechanism of autoxidation and the inhibiting action of "anti-oxygens."

Schonbein[4] was the first to point out that an autoxidizable substance possesses the power to cause the oxidation of other substances which by themselves do not react with molecular oxygen. He also expressed the opinion that compounds functioning as negative catalysts in such autoxidations are better inhibitors the easier they are to oxidize. Moureu and Dufraisse[5] and Dhar[6], independently reached the conclusion that the oxidizability of a compound determined its activity as a negative catalyst in these reactions; and Bigelow[7], in his investigation of the inhibitory power of the four butyl alcohols on sodium sulfite autoxidation, found that all but the tertiary acted as negative catalysts, the latter being practically inert. Backstrom[8] recorded similar results in his study of the inhibitions of these same alcohols on the autoxidation of benzaldehyde. He emphasizes the fact that in this case also there appears to be a direct relation between inhibitory power and sensitivity to oxidation, since the tertiary alcohol can only be oxidized with simultaneous destruction of the molecule, whereas the other three are quite easily oxidized to aldehydes or ketones. Alyea and Backstrom[9] investigated *i*-propyl, *sec*-butyl and benzyl alcohols as inhibitors of the autoxidation of sodium sulfite, and concluded that the alcohols suffered an induced oxidation, two molecules of the oxidation product (aldehyde or ketone) being formed whenever a chain was broken.

But Backstrom does not believe that all inhibitors act in this way, or that it is clearly established that the factor which determines the potency of a strong anti-catalyst is its sensitivity to oxidation. Milas[10] supports this by pointing out that anthraquinone, which is not oxidized during the oxidation of anethole, is a far stronger inhibitor of this oxidation than anthracene, which is inducedly oxidized to anthraquinone. Further, anisaldehyde is easily oxidized, yet its inhibitory effect is negligible.

Based upon the fact that phenols and certain amines are known to form condensation products, Taylor[11] has suggested that such condensations are preceded by the formation of addition compounds and that the inhibitory power of a compound may be connected with its ability to form such molecular compounds with aldehydes.

The classical work of Baeyer and Villiger[12], in 1900, supported as it has been by subsequent investigators[8,13, 14, 15], makes it quite evident that, in the autoxidation of an aldehyde, the peracid is formed first and the latter then reacts with another molecule of the aldehyde with production of the acid: $RCOH+O_2 \rightarrow RCO_3H$, and $RCO_3H+RCOH \rightarrow 2RCOOH$.

It is Backstrom's opinion that, since a newly formed molecule of the reaction product will, in the great majority of cases, suffer its first collision with an aldehyde molecule, it is reasonable to expect these collisions to result in the formation of excited aldehyde molecules, and that every such excited molecule will give rise to a reaction chain involving a large number of aldehyde molecules. It is assumed that the heat generated in a reaction in which an excited molecule participates will always be sufficient to cause the excitation of another molecule. In this connection, he suggested that strong antioxygens might possess some specific property of robbing these excited molecules of their energy and dissipating it in some physical manner, and called attention to the claim of Perrin[16] that the power of quenching fluorescence light is a property of all antioxygens.

In support of Christiansen's theory[17] of negative catalysis, Backstrom found in the autoxidation of benzaldehyde, of *n*-heptaldehyde and of sodium sulfite that (1) every light quantum absorbed caused a great number of molecules to react, (2) the photochemical reaction showed negative catalysis, and (3) there was an unmistakable parallelism between thermal and photochemical reactions in the action of different inhibitors, so that he concluded that the reaction mechanism was similar in the two cases (daylight and dark) and that these reactions actually were thermal-chain reactions. His results demonstrated also that it was the reaction of peracid formation which was primarily responsible for further activation, but that some activation might be due to the reaction between peracid and aldehyde.

In the autoxidation of *alpha*-amyl-cinnamic aldehyde in the dark at room temperature, the genesis of the *cis* form, was ascribed by Bogert and Davidson[18], to the chemiluminescence of the primary oxidation, and this chemiluminescence might have been due to an excited molecule's returning to its normal state with an emission of light energy capable of performing the change which it was shown that ultraviolet light could do in changing the *trans* to the *cis* form.

A characteristic of autoxidation is its tendency to induce autopolymerization[19]. Unsaturated compounds, like acrolein, styrene, isoeugenol, and the like, are apt to suffer polymerization[20,21,22] in the presence of such autoxidation reactions.

An interesting phenomenon in the autoxidation of benzaldehyde is the rapid fall in the oxygen absorption rate before the aldehyde has undergone oxidation to any appreciable extent. In the case of anethole, Milas[10] states that a rapid autopolymerization during the initial stages of the oxidation will decrease its active concentration and cause the maximum oxygen absorption to occur long before any considerable amount of the compound is oxidized. That autopolymerization does actually occur during the autoxidation of aldehydes seems well established, as just noted, but that this is sufficient to account for this fall in the rate of oxygen absorption has not been clearly proven. Reiff[23] has expressed the opinion that it is caused by the poisoning of the wall surfaces by reaction products.

Backstrom, on the other hand, believes that it is referable to the fact that the solubility of oxygen in benzaldehyde is relatively slight (4 cc. of a saturated solution contains only 0.38 cc. of the gas). In a reaction rate of 4 cc. per minute, the concentration of the peracid had reached

ten times this figure by the end of the first minute and, "under such conditions," he goes on to say, "it is inevitable that a certain proportion of the active molecules produced by the light will react with the peracid instead of with oxygen, since also the reaction between peracid and aldehyde is light-sensitive, and probably the same applies to the active molecules produced in the reaction between aldehyde and oxygen. This, however, is not enough to explain the decrease in the concentration of active molecules: it must also be assumed that the secondary reaction is less effective than the primary in causing activation of other aldehyde molecules." In support of this hypothesis, Raymond[24], upon completion of his interesting experiments decided that the rapid decrease in oxygen absorption rate was to be ascribed, in the autoxidation of benzaldehyde, to the presence of traces of stilbene and especially to the persistence in the solution of the perbenzoic acid formed.

In the oxidation of benzaldehyde with oxygen gas, Askey[25] has shown that when the proportion of oxygen was high, there was no evolution of carbon dioxide, but when this proportion was low it was evolved. He suggested that, in the latter case, perhaps some of the perbenzoic acid decomposed to phenol and carbon dioxide; but phenol could not be detected in the products of the reaction, and Erlenmyer[26] has demonstrated that when perbenzoic acid is heated it breaks up into oxygen and benzoic acid. A possible alternative hypothesis is that the carbon dioxide may come from a spontaneous decomposition of activated benzoic acid molecules.

Reiff[23], as already mentioned, and Brunner[27] independently, advanced the hypothesis, later accepted by Rideal[28], that the autoxidation of benzaldehyde takes place, or is initiated at the surface of the container and is inhibited by the negative catalyst absorbed in high concentration there. That reactions are sometimes thus initiated and inhibited seems clear, as pointed out by Bailey[29]; but Bailey himself did not regard Reiff's or Brunner's proof as acceptable, and called attention to the fact[30] that, although Reiff showed that oxidation can take place at the surface of sand, the velocity of the reaction was appreciably affected only when the extent of extra surface introduced was large. He suggested that the spontaneous oxidation of benzaldehyde was initiated to a considerable degree (perhaps 70%) at the liquid-gas interface, from which reaction chains were propagated into the liquid, the large inhibiting effects of small quantities of sulfur, or other substances, being attributed to their preferential concentration at the interface. It was admitted that it was impossible to distinguish between a reaction of this type and one of the homogeneous type advocated by Moureu and Dufraisse[31] and by Backstrom, but that the shape of the inhibition curve favored the liquid-gas interface hypothesis.

Experimental

I. Apparatus and Method

Patterned after the micro Van Slyke amino apparatus used by Bogert and Davidson[2] in their experiments, the equipment shown in Fig. 1 was designed, consisting of four separate and identical absorption chambers, all shaken by the same driving axle, thus permitting the simultaneous observation of four different samples under exactly the same conditions of light, heat, speed of shaking, etc.

In detail, this apparatus (Fig. 1) consisted of a ¾″ x 50″ steel axle-tree (S), which revolved in suitable bearings. Four bakelite discs (R), each ½″ thick and 2¾″ in diameter and about a foot apart, were fastened eccentrically to the axle with set screws, so that any object held in contact with the periphery of the disc would have a 1″ throw. The axle was belt-driven by a small electric motor whose speed was regulated by a rheostat.

For the construction of the absorption chamber (B), pyrex glass was used, because of its greater flexibility to mechanical or heat shocks, and its capacity was 10 cc. The constriction shown was made to prevent splashing of any aldehyde into the capillary oxygen lead-in. Stopcock (A) had a V-shaped bore and provided connection either from the absorption chamber (B) to a 4 cc. calibrated side-arm graduate, to the drain (Y), or from the side-arm to the drain. It was heavily built of thick glass and over its farther end was slipped a bakelite cylinder (P). Between this cylinder and the stopcock itself were several wrappings of adhesive tape, to function as wedgings and as shock absorbers. The cylinder was held in firm and constant contact with the eccentric bakelite disc by means of a steel spring. Stopcock (F) had a T-shaped bore and served to establish connection between the absorption chamber, the burette and the O inlet.

The burette used was of 25 cc. capacity. It was connected with the stopcock (F) lead by means of capillary tubing (suction tubing being employed for the joints), and to the leveling bulb (L) by ordinary rubber tubing. This bulb was supported by a side arm from a sleeve which slid up and down on the burette. Water was used in the leveling arm at all times and atmospheric pressure was maintained in the system by keeping the water levels the same.

A run was made as follows: The side-arm graduate was filled with wash alcohol, which was then drawn into the absorption chamber by applying the lead from a water pump to the lead from the stopcock (F), that to the burette being closed. This alcohol was agitated in the chamber by sucking air through it, after which it was drawn off and the washing repeated with fresh alcohol. The chamber and side-arm were next thoroughly rinsed with distilled water, and were then filled with warm chromic acid mixture, which was allowed to remain at least thirty minutes before being drained off. This was followed by a thorough rinsing with distilled water and a final drying by sucking dry air through for thirty minutes.

The oxygen supply was connected by rubber tubing with the lead-in on stopcock (F) and a current of the gas was passed through the burette and the water contained therein, until the latter was saturated with the gas and the air above it was displaced by oxygen. By turning the stopcock the water was then allowed to rise again in the burette to the proper position (the 20 cc. mark) the oxygen escaping through the absorption chamber. The air remaining in this chamber and the side-arm was finally displaced by oxygen. If it became necessary, in the course of a run, to introduce oxygen into the burette, this was accomplished by making a rubber tubing connection from the oxygen tank to the lead-in on stopcock (F), with the latter so adjusted as to open communication between the oxygen inlet and the

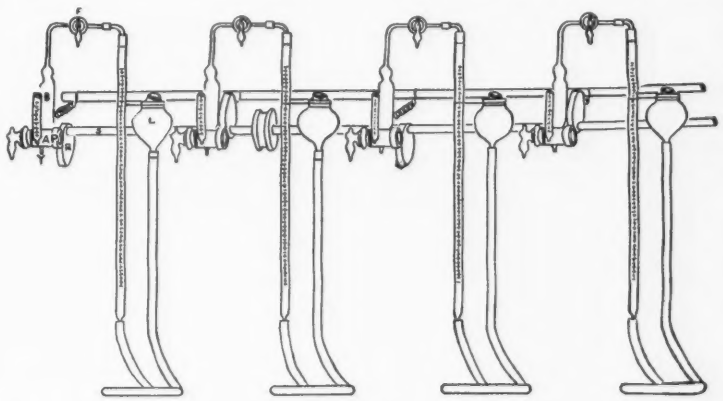


Figure 1

burette, while blocking the inlet to the absorption chamber.

The aldehyde was poured into the side arm up to the 4 cc. mark. By lowering the leveling bulb and adjusting the stopcocks properly, this 4 cc. was drawn into the absorption chamber and the stopcock immediately closed.

Shaking was continued throughout the entire operation. All four burettes were read before this shaking started. The motor and the stop-watch were started simultaneously. The readings on the first burette were taken at the 15 second mark, on the second at 30 seconds, the third at 45, and the fourth at 60. In this way, readings were obtained every minute on each burette. The axletree speed was approximately 300 revolutions per minute, because preliminary experiments had shown that at above 200 revolutions per minute the absorption rates were independent of the speed of the shaking.

II. Materials Used

A. *Aldehydes.*—The aldehydes purchased for this investigation were the purest obtainable on the market. They were all further purified by distillation under reduced pressure in an atmosphere of nitrogen, taking only the middle cuts. As some of our earlier experiments suggested the possibility that the intensity of the light during distillation might influence the product, all of these distillations were conducted in the dark. These purified aldehydes were kept under nitrogen in glass-stoppered amber bottles. Experiments showed that checks could be obtained after two weeks standing of these samples, but if they were left for longer periods than this they were re-distilled before use. The m. p. or b. p. of these purified aldehydes are given in Table I.

TABLE I

Initial Materials

Aldehyde	*B.P. @ 20 mm.*
n-Heptaldehyde	55— 57°
Benzaldehyde	82— 83°
n-*a*-Amylcinnamaldehyde	183—186°
Cinnamaldehyde	129—132°
Hydrocinnamaldehyde	106—109°
p-Anisaldehyde	135—138°
Phenylacetaldehyde	94— 97°
p-Tolualdehyde	105—107°
Salicylaldehyde	84— 86°
n-Octanal	75— 78°
n-Decanal	103—105°
n-Undecanal	129—132°
Citral	110—112°
Citronellal	98—100°
Hydroxycitronellal	154—157°
Piperonal	34° M.P.
Vanillin	81° M.P.

B. *Other Materials.*—The original chemicals, inhibitors and perfume raw materials employed, were the finest grades on the market and were intentionally used direct without further purification. The oxygen when bubbled for two hours through a saturated aqueous barium hydroxide solution produced no cloudiness, thus demonstrating the absence of carbon dioxide. It was used without drying, since all absorption measurements were made over water. The sodium sulfite solution was a 0.6M solution, buffered by the addition of 0.01 equivalent per liter of sulfuric acid, following the directions of Alyea and Backstrom[9].

III. Autoxidation Rates of Aldehydes in the Dark

It was our original intention to present the results of this study of comparative oxidation velocities in graphic form, plotting cc. per minute against time. The objections to such a plan included the large number of rates measured, their great difference, a type of curve necessitating frequent crossing and re-crossing of the lines, and the practical impossibility of really checking a curve.

We therefore decided to use the maximum rate as the basis of comparison, for this could generally be checked with a fair degree (10%) of accuracy, and it is undoubtedly the best indicator of changes in odor note, since it not only represents the greatest change per minute due to oxygen absorption (acid or peracid formation), but also is responsible for the highest rates in the induced reactions. Further, these maximum oxidation velocities seem to be of theoretical importance in developing a satisfactory hypothesis for the reaction mechanism, for Milas has shown there is a definite relation between the maximum oxygen absorption rate, inhibitor concentration and time required to reach that rate.

TABLE II

Dark Autoxidation Rates of Aldehydes

Aldehyde	*Initial Rate*	*Maximum Rate*	*Time of Maximum Rate*	*Temp.*
n-Heptaldehyde	.78 ccs/min.	2.60 ccs/min.	21st min.	29°C.
Benzaldehyde	.20	.20	1	28
a-Amylcinnamaldehyde	1.50	3.60	3	25
Cinnamaldehyde	.50	2.00	10	25
Hydrocinnamaldehyde		.036 av	51	28
Anisaldehyde		.00		30
Phenylacetaldehyde		.35	70	30
p-Tolualdehyde	.15	.15	1	23
Salicylaldehyde		.00		25
n-Octanal	.06	.08 av.	10- 20	27
n-Decanal		.001 av.	10-100	27
n-Undecanal		.0005 av	10-100	27
Citral	.06	.08 av.	10- 20	25
Citronellal		.0025 av.	10- 60	25
Hydroxycitronellal	.50	.55	10	28
Sodium Sulphite	.90	1.20	18	27

The first column of this table shows the initial oxidation rate (cc./min. for the first min.) and the time necessary to reach the maximum rate, from which data a graph can be drawn if desired.

As temperatures influence oxidation velocities, they too are given. It proved most convenient to regulate room temperature by the temperature of the building, and the temperature thus could be maintained within a 2° range during the determination of the oxidation rate.

The second column of figures in the table records in most cases the maximum oxidation velocity in the dark as cc. of oxygen absorbed per minute by 4 cc. of the aldehyde. In some few cases, however, the rate was so slow that it was practically impossible to determine either its initial or its maximum velocity, and in those cases an average figure is given instead.

An examination of this table leads to the following observations:

1. The aliphatic C_7 *n*-heptaldehyde has a far higher rate than the aromatic C_7 benzaldehyde.

2. On comparing the homologous C_7, C_8, C_{10} and C_{11} aliphatic aldehydes, it will be noted that the oxidation velocity falls rapidly with increasing molecular weight.

3. The rate for benzaldehyde is lower than that for phenyl acetaldehyde, but higher than that for hydrocinnamaldehyde.

4. On comparing hydrocinnamaldehyde, cinnamaldehyde and *alpha*-*n*-amylcinnamaldehyde, the increase in the maximum rate, due apparently first to the introduction of the ethylene linkage and then to the *alpha*-amyl substitution, is quite startling.

5. This influence of the olefin bond seems also responsible for the higher maximum rate of citral as compared with that of citronellal.

6. That hydroxycitronellal should show a maximum oxidation velocity greater than that of citronellal itself, was wholly unexpected, for the OH group generally acts as a retarder of oxidation, as can be seen by comparing salicyl aldehyde with benzaldehyde.

7. Ether groups also tend to reduce oxidation velocities, as witness the maximum rates for *p*-anisic and benzaldehyde. Further, amyl acetate solutions containing 30% of vanillin, or of piperonal, showed no oxygen absorption. Bogert and Davidson[2], in their studies, found the oxidation velocities of *p*-anisaldehyde, piperonal, vanillin, ethyl vanillin and salicyladehyde, at 100°, respectively as follows: 1.0, 2.0, 0.12, 0.10, and 0.00.

8. As might have been predicted, the rates for adjacent homologs, like benzaldehyde and *p*-tolualdehyde, do not show any great difference.

9. Sodium sulfite was included in these experiments because there is considerable literature relating to its autoxidation.

IV. Oxidation Rates of Aldehydes in Daylight

Because of the influence of varying light intensity, due either to the time of year or weather conditions, measurements were made only during the months of April, May, August and September, and invariably on clear sunny days, so that checks could be made quite closely and the

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relative rates used as a basis of comparison. Inasmuch as the light had to pass through the window glass and then through the pyrex glass of the reaction chamber, this probably contributed also to securing a fairly constant light intensity.

V. The Effect of Photochemical Action upon the Autoxidation Rate of Aldehydes

In this study a period of darkness was alternated with one of light, by covering the source of light (the laboratory window) with black shades which could be raised or

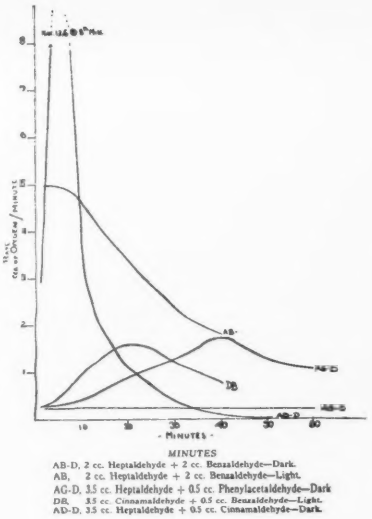
MINUTES
AB-D, 2 cc. Heptaldehyde + 2 cc. Benzaldehyde—Dark.
AB, 2 cc. Heptaldehyde + 2 cc. Benzaldehyde—Light.
AG-D, 3.5 cc. Heptaldehyde + 0.5 cc. Phenylacetaldehyde—Dark
DB, 3.5 cc. Cinnamaldehyde + 0.5 cc. Benzaldehyde—Light.
AD-D, 3.5 cc. Heptaldehyde + 0.5 cc. Cinnamaldehyde—Dark.

TABLE III

Daylight Autoxidation Rates of Aldehydes

Aldehyde	*Initial Rate*	*Maximum Rate*	*Time of Maximum Rate*	*Temp.*
n-Heptaldehyde	4.00 cc/min.	8.20 cc/min.	14	29
Benzaldehyde	2.60	2.60	1	26
a-Amylcinnamaldehyde	1.00	3.60	3	25
Cinnamaldehyde	.60	2.00	9	25
Hydrocinnamaldehyde	.06	.14	20	26
Anisaldehyde	.04	.07	10	25
Phenylacetaldehyde	.12	.30	26	28
p-Tolualdehyde	2.40	2.40		26
Salicylicaldehyde		.00		26
n-Octanal	.08	.11	15	25
n-Decanal		.01 av.	10-60	25
n-Undecanal		.003 av.	10-60	25
Citral		.10	20	30
Citronellal		.014	25	30
Hydroxycitronellal	.60	.95	9	30
Sodium Sulphite	.95	1.20	20	27

Table III corresponds to Table II, except that the measurements were taken in diffused daylight, instead of in the dark. Four cc. of aldehyde was used, the first column recording the number of cc. of oxygen absorbed in the first minute, the second the maximum rate (in cc. per minute), the third the time required to reach this maximum, and the fourth the temperature during the oxidation.

The conclusions to be drawn from a study of this table are in the main similar to those drawn from Table II, with the exceptions that the maximum rate of phenylacetaldehyde was much lower than that of benzaldehyde, although still higher than that of hydrocinnamic, and that heptaldehyde showed the highest rate of all the aldehydes studied.

With the exceptions of the ethylenic cinnamaldehyde, its *alpha*-amyl derivative and citral, all the aldehyde autoxidation reactions proved to be decidedly sensitive to light, there being generally a considerable increase in the oxidation velocity. Phenylacetaldehyde's initial rate in the daylight was higher than in the dark, but the maximum rate was lower. *p*-Anisaldehyde, which showed no oxygen absorption in the dark, was oxidized in daylight; but 30% solutions of vanillin or piperonal, in amyl acetate, which gave no evidence of oxidation in the dark, were likewise unoxidized in daylight during the period of observation.

By way of further illustration, a few typical curves also are given above, which show the similarity in the curves of benzaldehyde and *p*-tolualdehyde, and of those of citral, citronellal, hydroxycitronellal, hydrocinnamaldehyde and phenylacetaldehyde. In general, lower temperature and absence of light, result in a flattening of the curve, a lower maximum oxygen absorption and an increase in the time required to reach that maximum rate. Cinnamaldehyde and its *alpha*-amyl derivative have the same autoxidation curves in the presence or absence of light.

lowered practically instantly. The measurements were all made on bright sunny days and show clearly the effect of light upon the rates.

In Table IV, the first column gives the initial and final minutes (inclusive) of the period and the second the type of reaction (light or dark). The figures under the individual aldehydes show the initial and final rates or, where the photochemical effect was too slight to give accurate measurements, they represent the average for the periods.

In the case of *n*-heptaldehyde, the influence of temperature upon the photochemical action is noteworthy. In the heptaldehyde experiments at 35°, the question marks represent the fact that

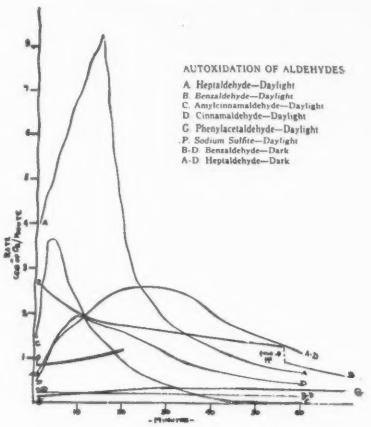

TABLE IV

Photochemical Action upon the Autoxidation of Aldehydes

Experiment No. 1. Temperature 25° C.

Minutes	*Reaction*	*Cinnamaldehyde ccs/min.*	*Phenylacetaldehyde ccs/min.*	*Hydrocinnamal. ccs/min.*	*Hydroxy Citronellal ccs/min.*
1— 5	Dark	.25— .80	.00	.00	.37
6— 7	Light	1.80—1.10	.10	.05	.50
8—18	Dark	1.10—1.70	.018	.015	.335
19—22	Light	1.70—1.70	.13	.07	.50
23—33	Dark	1.60—1.20	.04	.008	.245
34—35	Light	1.20— .70	.28	.065	.55
46—57	Dark	.80— .54	.15	.015	.33
58—64	Light	.50—	.22	.058	.42

Experiment No. 2. Temperature 30° C.

Minutes	*Reaction*	*a-Amylcinnamaldehyde ccs/min.*	*Citral ccs/min.*	*Sodium Sulphite ccs/min.*	*Benzaldehyde ccs/min.*
1—5	Dark	.70—4.00	.02	.90—1.00	.22
6—11	Light	4.00—2.20	.04	1.00—1.20	2.30
12—20	Dark	2.10—1.00	.012	1.20—1.20	.30
21—22	Light	.80— .50	.033	1.10— .00	1.70

Experiment No. 3.

Minutes	*Reaction*	*Heptaldehyde 35°C. ccs/min.*	*Heptaldehyde 30°C. ccs/min.*
1— 4	Dark	3.00— 4.90	.40— .40
5— 6	Light	7.80— ?	2.05—2.30
7—10	Dark	11.60—15.00	.60— .60
11—14	Light	8.60— ?	2.20—2.60
15—24	Dark	6.00— 3.20	1.10—1.10
25—29	Light	3.40— 2.90	2.50—2.50
25—29	Dark	2.60— 2.40	1.20—1.20

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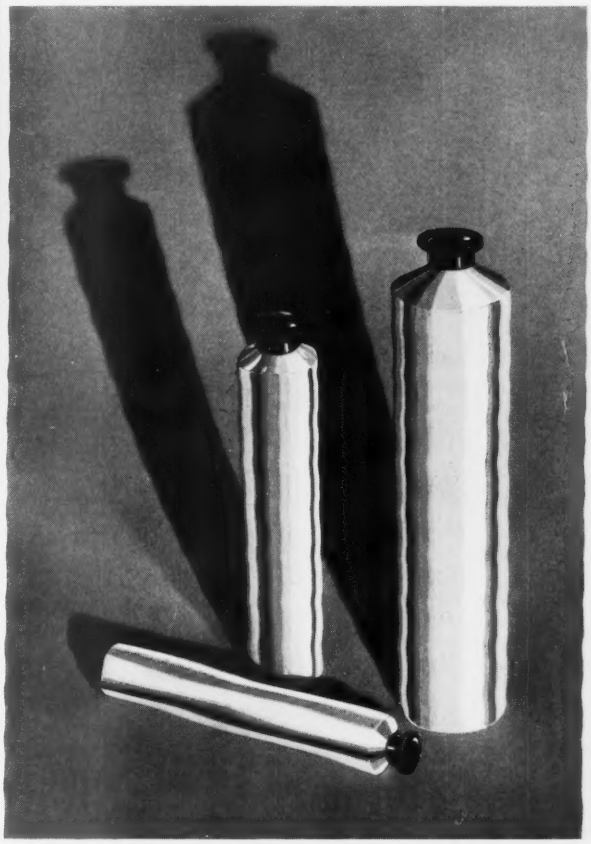

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these measurements could not be taken because of the necessity of refilling the burette with oxygen.

Statements concerning photochemical activity or inactivity must be interpreted from the standpoint of the particular light rays used. The effect of light upon the autoxidation of sodium sulfite has been noted by many investigators, especially Backstrom[13], who showed that the photochemical reaction is a chain reaction, the maximum yield amounting to 50,000 molecules per quantum. In his experiments only monochromatic light of wave lengths 254 *u.* and 265 *u.* were employed, because it had been shown that no others were absorbed appreciably by the solution. In our own experiments, it seems unlikely that any light waves shorter than 300 *u.* reached the solution with sufficient energy to influence the rate, since they had to traverse first both the window glass and the pyrex glass of the absorption chamber. Exposed to shorter waves, it is quite possible that the cinnamic aldehydes also would have been photochemically active.

VI. Effect of Temperature upon Autoxidation Rates of Aldehydes

In this series the effect of a temperature change of approximately 10° upon the dark and daylight autoxidation rates was studied. How to secure this 10° change without excluding the light in the measurement of the daylight rate, and the complications necessary in the mechanical arrangements, proved something of a problem. A crude and simple procedure was adopted. An asbestos pad, 5" in diameter, was placed on a ringstand directly beneath the absorption chamber, so that this pad could be heated with an ordinary bunsen burner. The burettes on either side were protected by an asbestos shield. A thermometer in the side-arm registered the temperature. Careful adjustments for thirty minutes before the experiment was started showed a variation of only +1.50°. Although the crudity of the method is obvious, it is believed that useful information has thus been acquired.

The results are given in Table V, wherein it will be seen that there is a fairly close agreement in the results, except in the case of hydroxycitronellal, citronellal, citral and octanal. This difference, △, in the table was based upon the ratio for a 10° temperature interval, and if the temperature change was less than 10° was calculated to that standard.

TABLE V

Temperature and Rates of Autoxidation

Aldehydes	*Maximum Dark Rate ccs/min.*	*Temp.*	△ 10°	*Maximum Daylight Rate ccs/min.*	*Temp.*	△ 10°
Heptaldehyde	2.70	29°	1 3	8.25	30°	1.7
	3.00	37°		14.50	40°	
Benzaldehyde	.15	20	1.4	2.60	30	1.3
	.20	28		3.30	40	
a-Amylcinnamaldehyde	3.50	28	1.1	3.60	28	1.5
	5.30	40		5.40	38	
Cinnamaldehyde	2.20	29	1.5	2.10	29	1.4
	3.20	39		3.40	44	
Hydrocinnamaldehyde	.036	28	1.4	.14	26	1.4
	.050	38		.18	36	
Phenylacetaldehyde	.35	30	1.5	.30	30	1.6
	.56	41		.50	41	
Sodium Sulfite	1.20	27	1.00	1.20	30	1.0
	1.20	35		1.20	40	
Hydroxycitronellal	.40	28	4.0	.56	25	2.1
	2.30	44		1.10	40	
Citral	.06	25	3.8	.10	25	2.2
	.23	35		.20	35	
Citronellal	.0025	25	4.0	.014	30	2.1
	.01	35		.026	38	
n-Octanal	.08	28	3.0	.11	28	3.0
	.24	38		.33	38	

(Concluded in May issue)

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Bassorin Laxatives

INTEREST surrounding the use of bassorin in laxatives has instituted a search for sources of this gum component. The fact is that the most prolific and most reasonably-priced source is karaya gum which contains a water soluble portion of 11.2 per cent. consisting of arabin; the balance of the gum, or the insoluble portion consisting of bassorin associated with a small proportion of saline substances which yield, when the gum is burnt, 5.6 per cent. of ash.

Therefore, it is possible to obtain bassorin by mixing powdered karaya gum with water and filtering. The substance left on the filter will be bassorin plus a small amount of saline sustances.

In actual practice, the bassorin is combined with some other substance which will give it a start when it is taken internally. The bassorin has many times the swelling power of agar and is superior to psyllium seed in that there is no large bulk of seed shell to force through the body and which is said sometimes to form large cakes difficult of removal. The only method of preventing this occurence with psyllium seed is to drink very large quantities of water.

Substances which can be mixed with the bassorin to give it the "kick-off" necessary for a laxative, are buckthorn, cascara sagrada, phenophthalein, etc. These can be mixed by making an extract of the barks, or a solution of the phenophthalein and then working this into the bassorin. It is said that there is no need to remove the bassorin from the karaya gum, since the gum itself will make an excellent laxative in combination with one of the other ingredients mentioned.

One imported product is a mixture of bassorin, agar, and the mucilage of psyllium seed.

Industry's Books

Us Diabetics, by Don H. Duffie, 112 pages, published by the author at South Lancaster, Mass.

A book written by a doctor to serve the average diabetic patient. It is designed to acquaint the patient with food and diet and the nature of his disease.

Distinctive!

INVARIABLY, the designs in artistic Boxes, as created by "HATCH of Lowell," are accepted by those who know, as *distinctive!*

This industry . . . Drugs and Cosmetics . . . has long since come to recognize that "Boxes by HATCH" possess an appeal and a pulling power so necessary in these strenuous days of highly competitive selling.

Let us submit a striking "idea" for your product.

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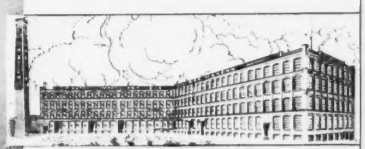
Lowell, Massachusetts



Many of the outstanding Fancy Boxes emanate from this progressive plant.

Would you like to

Save Money

on your packaging costs?

Many manufacturers have saved thousands of dollars by calling in a competent designer to study their package design problem. This study very often resulted in a more effective package more economically produced.

Emil A. Schaedler

Designer

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(the double seal of cap and film)

Is used on many Nationally known products.

PREVENTS

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Send us a few of your packages to "FILMA-SEAL" and we will prove its advantages to you.

FERDINAND GUTMANN & CO.
Brooklyn, New York

Trade Marks Reg. Pats. Pending

What's New in Medicines

(*Continued from page 313*)

mas and all kinds of pruitus. Carl L. Lemmel, Hamburg, Germany.

Lindos—Sugar coated pills, Lindomaltine. Brownish colored pills containing pure malt extract, eggs, whole milk, cocoa and sugar. Analysis shows 11.47% albumen, 5.46% fats, 76.66% carbohydrates, 0.50% lecithin, 3.17% mineral water, 1% calcium glycerinophosphate, 0.44% lime (CaO). Concentrated nutrient. Lindomaltwerke G.m.b.H., Krefeld, Germany.

Lubergal—Tablets. Contain phenyl-allyl-barbituric acid. Hypnotic and sedative. Dr. Baun and Herberg G.m.b.H., Hamburg, Germany.

Rhecombetten—Reddish-violet, sugar-coated pills. Contain per pill 0.1 gram extract of rhubarb, 0.016 gram aloin, 0.0005 gram strychnine nitrate, 0.004 gram ipecac, 0.005 gram extract of belladonna and 0.03 gram phenolphthalein. For atonic and spastic constipation. Goda A.G., Breslau, Germany.

Strumex—Liniment. Aromaticized potash soap solution containing 0.128% sodium fluoride. (See Pharmac. Acta Helvetica, volume 7, page 185, 1932. L. Weber, Esslingen a. N., Germany.

Strumex—Powder. Contains 100 grams extractum spon. conc. cpt., 2.5 grams calcium iodide, 0.1 gram sulfur iodide, 0.1 gram calcium silicate (liquid), also refined sugar and milk sugar in equal parts. (See Pharmac. Acta Helvetica, volume 7, 1932, page 185).

Angiolysin—Tablets. Contain 0.012 gram adenosinphosphoric acid, and 0.121 gram pyrrhodid (dimethylaminophenyldimethyl-pyrazolone sulfocyanide). For angina pectoris. Chemische Fabrik Dr. Joachim Wiernik & Co., A.G., Berlin.

Eta Tragol—Tablets. Contain 0.075 mgm. arsenic per 20 tablets and mineral products, iron, calcium, phosphates, and carbonates. For increasing body weight, increasing number of red blood corpuscles and for strengthening nerves). PHarmac. Acta Helvetica, volume 7, 1932, page 182). Eta Chemisch-technische Fabrik, Berlin-Pankow, Germany.

Glykhepar—Combined liver and glycocoll preparation, containing 17 glycocoll and sugar and taste correctives. In liquid and granulated form. For diseases of nervous system accompanied by loss of muscular activity. (Sueddeutsche Apotheke Zeitung, volume 72, 1932, page 642). Nordmark Werke G.m.b.H. Hamburg, Germany.

Acidosan—Paste. Has fatty base which is not attacked by acids and bases and is saturated up to 100% by volume with acetic acid. Contains also bacilli and aromatics. Contraceptive and prophylactic against sexual diseases. (See Pust, Muenchner medizinische Wochenschrift, volume 79, number 25, 1932). Muenchner Vertriebgesellschaft Medizinischer Artikel, Muenchen, Germany.

Ergocholin—Tablets. Contain 0.0089 gram chlorinated derivatives of pacyl and 0.005 gram secale pure alkaloids. Treating morbus Basedowii and other thyreogenic disturbances. (Lurgi, Deutsche medische Wochenschrift, volume 58, number 23, 1932). Chemische Fabrik Dr. J. Wiernik & Co., Berlin-Waidmannlust.

Eucatol 6—Satiny-white, fat-containing skin cream, which contains skin-regenerating hormones, activated cholesterin and a liquid waxy alcohol. Preparation nourishes, cools, heals and regenerates skin and protects against sun and wind. (See Zentralblatt fuer Pharmazie, Wissenschaftlisch-praktische Heft, volume 3, 156, 1932). Chemische Fabrik Promonta G.m.b.H., Hamburg, Germany.

Gagetussin—Contains extract of sundew (drosera), extract of thyme, extract of primrose, extractum castaneas vesiculae, potassium guaicolsulfonate in sugar syrup. For diseases of respiratory organs, croup. Hageda A.G., Handelsgesellschaft Deutscher Apotheker, Berlin, Germany.

Ipecacop—Tablets. Contain malt and alkaloids of ipecac root and opium. Cough remedy. Dr. Braun and Herberg, G.m.b.H., Hamburg, Germany.

Liniscal—Clear, reddish-brown liquid; 100 cc. bottles. Contains perugen distilled in solution of ammonium oleate. For scabies and other skin diseases. Goda A.G. Breslau, Germany.

Menthogel—Emulsion containing menthol, eucalyptol, methyl glycollate, terpineol and oil of mountain pine in high concentration. Inhalant in treating throat, nose and pharyngeal catarrhs. Few drops in hot water for inhaling. Hammer Apotheke, Pforzheim, Germany.

Nervinum Tonicum B.—Combination of organic and inorganic medicament in new form and combination. Contains in solution calcium glycerinophosphate, potassium bromide and sodium bromide, and active dialysates of valerian, cinchona and parsifloria incarnata, as well as an organic iron compound and colloidal egg lecithin as an important tonic ingredient. The lecithin is not made with strong chemical reagents, which kill the biological activity of the substance, but by a special process. For diseases of nervous system, neurasthenic troubles, exhaustion, nervous insomnia, epilepsy, etc. Dose, adults 1 to 2 tablespoons; children 1 to 2 teaspoons. Hammer Apotheke, Pforzheim.

Oesatin—Liniment containing 5 grams of oil of pinus sylvestris, 3 grams of oil of lavender, 10 grams of oil of turpentine, 5 grams of spirits of camphor and 15 grams of ammonia water. Fr. Kratzert Stadt Apotheke, Koenigstein a. E.

Panvalon—Contains calcium valerianate, calcium bromide, simple tincture of cinchona and fluid extract of valerian. For vaso-neurotic disturbances, excitement and excessive perspiration. Dr. Brettschneider Apotheke, Berlin, Germany.

Sexfortan—Tablets. Silver-coated preparation containing mineral salts, vitamins, phosphatide-sterines, thyradol, archadol, cerebradol, renaldol, extractum muirae, yohimbine, papaverin. For sub-functional conditions of sexual glands, particularly in ejaculatio praecox and disturbances in virility. Fuerstlich Fuerstenbergsche Hof-Apotheke R. Baur, Donaueschingen, Germany.

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WITHOUT EXPENSE

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RIEGELINE

Riegeline is a newly developed product, combining the economy of ordinary glassine with the transparency of more expensive wraps. It twists well, works rapidly on any wrapping machine, requires no special adhesive, and will not expand in wet weather or shrink to the splitting stage in dry weather.

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WE • WILL • SOLVE • IT

PACK-URGES*

by "Duff" Gordon

MINERALAVA in Tubes:

The first time we met the late Rudolph Valentino he was at a Trade Exposition giving his personal endorsement to Mineralava. Rudy, like other famous screen and stage stars, found this beauty clay excellent for keeping a smooth clear skin . . . Irene Bordoni, Marion Davies and Marjorie Rambeau are among the many who also went on record as to the merits of this line . . . Now Mineralava is back on the market with the line broadened to include Dental Cream and both Brushless and Lather Shaving Cream. These new items are put up in tubes of unusual smartness and design, with cartons to match. (*It is fitting that with such Quality and background, Mineralava products should use National tubes exclusively . . . We are National's New York headquarters, so see us for your tube requirements.*)

• • •

CONGRATULATIONS to Fred Pope:

Toilet Requisites Magazine passed its 18th birthday with preparations to move to more spacious quarters in the Rockefeller Centre . . . and we can't let the occasion pass without a word for our former employer and good friend, Fred'k. J. Pope, founder and publisher, who still guides the making of this beautiful magazine . . . Publisher Pope and his magazine stand for what is best in the Toilet Goods industry, so hats off to him and the T. R. Staff.

• • •

Is this your CUSTOMER?

This is an intimate sketch of John L. S. Consumer who buys Tooth Paste and other preparations in tubes . . . Like many others John spends countless hours hunting tube caps and incidentally, wondering when his favorite brand is going to adopt a sane Cap that won't get lost. His initials L. S. mean "Long Suffering" but one of these days John will scrap the tubes that aren't equipped with the Captive Cap or the Valvo "Capless" feature, both obtainable in National Tubes. We are National's exclusive Metropolitan representative and a call will bring you all the details of our complete tube service.

• • •

After May 1st we are moving up Madison Avenue ten numbers (one block) to an office that faces on the street and perhaps a Fridigaire for the Summer trade . . . Maybe it's a question of larger space, or maybe it's just the Gypsy in us . . . Our phone number remains unchanged.

"Pack-Urges" is issued occasionally in the interests of better packages. If you wish to receive it regularly it will be sent free upon request. Address: ***H. R. M. Gordon —A Complete Packaging Service—341 Madison Ave.*** *(Phone Murray Hill 2-1626) New York.*

*Copyright and trade-mark applied for.

Management Forum

By Francis Chilson
Production Engineer

Conveying Face Powder

Frequently we have occasion to comment on face powder. Our interest in this product is unusually keen not only because it is one of the most important products of the trade but also because it is certainly the most difficult to handle. It seems strange that although progress has been made in formulation and in manufacture, little or none has been made in connection with conveying face powder. Most of the plants in the trade still convey powder by the scoop method. Some are fortunate enough to have several floors which eliminate the conveying problem because of gravity flow. But those with only one or two floors have to contend with one of the most difficult of production problems. You can convey powder by any one of several means: bucket elevators, belt conveyors, ring conveyors, or screw conveyors, but not a single one of these mechanisms is either practical or suitable either because of the dust they generate, the residue they leave behind or the impossibility of cleaning them.

A face powder conveyor should conform to certain specifications: it should be dustless while in operation; it should either be self cleaning or easy to clean; it should discharge itself completely. With the exception of blowers and vibrators none of the conveyors on the market conforms to all these specifications or any one of them for that matter. Bucket elevators are dusty and impossible to clean. We've used them for handling white raw materials, feeding sifters and they worked all right so long as they were enclosed in a small dust tight room. In this case of course they never had to be cleaned. Can you imagine trying to clean them after they'd handled colored powder? Again, we saw a bucket elevator installation that wouldn't work at all because the powder was so sticky that it adhered to the buckets and couldn't be thrown out.

The same objections apply to the belt types.

The screw types are not only difficult to clean but they do not discharge themselves completely. The screw revolves within a casing but must have a fair clearance. In the horizontal plane the screw leaves a considerable deposit in the channel.

The ring type conveyor, recently described in these columns, offers the most promising possibilities but at present writing no means of discharging them completely has been worked out. The vertical leg must always be filled with powder or the conveyor will not work. This eliminates it for handling varicolored batch work which changes frequently. It also eliminates it for handling raw materials when, as in face powder, these materials are present in different proportions that must be constant in the finished product.

With all of the standard conveyors eliminated what is left? Not much unfortunately. The only conveyor we've ever seen that conforms to all face powder requirements is the vibrating type. We tried it recently. It is dustless in operation; it discharges itself completely; it is self cleaning. When we had completed our test no powder was visible in the conveyor, only a minute amount was obtained when we rubbed our hands along the channel. But—there's always a *but* in face powder—the vibrating conveyor is limited to the horizontal plane. It will not carry upward at any angle sharper than 18 degrees. So that's out. In handling face powder it is more important to be able to carry vertically than any other way. The only possibility for the vibrator type is in connection with other systems which would elevate the powder to it. Or it might be used in cases where powder is made on one side of the building and it is desired to convey it across to the other side. In this case the conveyor could be sunk into the floor or slung from the ceiling of the floor below. Incidentally, the vibrator conveyor has absolutely nothing in the channels. Vibration carries powder through the pipe or channel, just like water—at a speed of 30 feet per minute. No dust is made while the powder is flowing. The only place where it can form is at the loading and discharge points where it would be enclosed anyway.

Now we come to blowers, a subject on which we can write with some authority because recently we took a severe licking in connection with a blower installation. But in spite of that we think that properly designed blowers afford the best means of handling face powder. They are already used for handling all the raw materials of which face powder is made. They are also used for flour and starch both of which pack more densely than face powder. When properly constructed they should handle face powder without difficulty. But air is a difficult medium at best because of the problems of back pressure and precipitation of load due to loss of air speed and the baffling effect of turns and elbows. Being air tight a blower system would be inherently dustless in operation. Having no projections on the inside of the ducts they should be self cleaning or at least easy to clean. But since we got an awful black eye because of an improperly constructed blower, we hereby devise and bequeath all aerostatic pressure problems to other research men.

This then leaves us with only one practical means of conveying face powder, which is efficient though somewhat clumsy. We refer to the use of portable bins, handled by means of a trolley hoist on a tram rail. In such a system the processing equipment must be mounted high so that bins can be placed under it. Then these bins must be hoisted for each operation. This method is not completely dustless but it is flexible and cleanable.

You fellows with three or four floors which can be utilized in handling powder cannot appreciate the headaches of a one or two floor layout.

Counterfeiters Checked

Package Machinery Company has brought out a pretty ingenious machine which will put a crimp into counterfeiters and at the same time give a distinctive touch to wrapped packages. This machine is limited at the present time to the wrapping of rectangular packages in transparent paper. In addition to wrapping the package the machine puts an extra pleat which cannot be duplicated by hand and which serves as a means of positive identification. The wrapper is printed with a band suitably colored to conform to the design. The machine spots the wrappers, forms the pleat in such a way that the colored band is under it and then completes the package. By this means you have a tight wrapped package with an extra pleat covering a colored band. The pleat must run around the narrow dimension of the package but it can be located anywhere, either top, bottom or middle and it can be arranged so that the pleat will register with the design of the carton or package within the

ROSS CHANGE CAN and STATIONARY MIXERS

FOR MIXING LIQUIDS, TOOTH PASTE, VANISHING CREAMS, OINTMENTS, ETC.

No. 30E-L Size "O" or 1½ gal. Portable Electric Laboratory Rapid Mixer.

A mixer especially designed for Laboratory and experimental work.

Will mix from ½ pint to 1 gallon of liquid or paste.

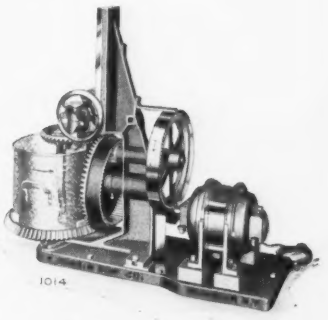
Container 9⅜" dia. by 6⅝" deep, holding 1½ gallons. Container and stirrer may be tin coated or made of any other acid resisting metal desired.

No. 36-E Spec. 25 gallon Enclosed Rapid Mixer Motor driven

With rapid stirrer giving a whirlpool action for mixing liniments and similar liquids.

Tanks and stirrer can be tin coated or made of other non-corrosive metal.

Built in sizes to 2000 gallons.



No. 30 - M Portable, 8 gal. Heavy Duty Change Can Mixer—Motor Driven

For use in mixing small batches of paste and similar substances, in quantities from ½ to 6 gallons. Can be run from a light socket. Sizes from 8 up to 40 gallons.

CHARLES ROSS & SON COMPANY

83 EMERSON PLACE 1869-1933 BROOKLYN, N. Y.

And NOW

SCREW-ON JAR CAPS can be Driven with POSITIVE SEAL!

Insures Uniformity . . . High Speed Production

At Lowest Cost!

Capping Jars with Type BP Equipment

HASKINS Type BP Bench Equipment is recommended for driving caps on bottles or jars over 2 inches in diameter. Being operated by foot pedal leaves both hands free to deliver jars and bottles to the capper. Standard unit has vertical adjustment permitting driving of caps on bottles and jars up to 10-inches in height.

HASKINS Type BCF unit is recommended for driving caps on bottles or jars up to 2 inches in diameter. Handles driving of caps on conveyor or in trays.

... HASKINS FEATURES ...

Handles fragile plastic and metal caps of practically any shape without any damage to finish. Reduces cap breakage to a minimum. Insures positive uniform seal. Is lowest priced electric capper. Capping speed in excess of all other semi-automatic cappers. Motor unit operates from 110-volt, 60 cycle A. C. current.

Write today for prices and complete information

Type BCF Flexible Shaft Capper

R. G. HASKINS CO. 4666 W. Fulton St. Chicago, Ill.

wrapper. It is said that this pleat cannot be duplicated by hand and hence it forms a protection against tampering and counterfeiting and because of it unusualness, the pleat can easily become associated in the public mind with any given product.

Refrigeration

Few production men fully realize the importance refrigeration has attained in the trade. Most of us have confined our refrigeration efforts to cooling tanks for shampoo liquids, mouth washes and perfumes. Some of us have had to contend with chilling lipsticks and suppositories and a few have had refrigeration problems in connection with processing and storing serums. Up to now however the problem has not been given the careful study it merits and most of the equipment used is pretty crude and inefficient. Recently however one of the larger refrigeration machine companies has begun to study this field and has already installed equipment for refrigerating Colgates and Palmolive Shaving Cream. Refrigerating such creams is said to produce a more creamy product in a shorter time. Later we hope to have a story for you on this.

A Prophetic Letter

The writer noted your comments on "Ethical Specialty Cosmetics" in the March Issue of the Drug and Cosmetic Industry Journal, and thought it might be of interest to you to know that we have been specializing in this type of cosmetics about thirty-eight years.

In fact, the writer is unquestionably the originator of corrective cosmetics and the first to use vitamins A and D and Skin Hormones in skin rejuvenation in the W. S. He has devoted a lifetime to the study of pharmaceutical, cosmetic chemistry and dermatology. He made his first cold cream at the age of twelve and had reasons for feeling especially proud of his efforts in his first attempt at cream making as the product was highly commended by Professor Joseph P. Remington of the Philadelphia College of Pharmacy. Demilo Corrective Cosmetics have been sold as Ethical Specialty Cosmetics for years and the demand for these products is due solely to the recommendation of users and the medical profession, rather than to the claims made for them through advertising by the originator and manufacturer.

It is to be hoped that you will look into this type of cosmetics as the writer feels the day is not far distant when the demand for purely commercial cosmetics will have become passe.

Very truly yours,

JAMES S. GLEGHORN,

President The Demilo Company.

P. S. We never fail to read your articles in the various trade papers. They should prove helpful to the trade in general.

New Equipment

A series of corrosion proof steam jacketed and single shell kettles and tanks have been introduced by Aluminum Cooking Utensil Co., New Kensington, Pa. One of the units illustrated herewith is portable, this being a departure in the construction of jacketed kettles. The portable kettles are simply utility kettles intended to function as auxiliaries and also for transfer of batches where it is not desirable to lose too much heat. They are useful as melting kettles in one floor layouts.

Package Machinery Co. has improved the adjustable wrapping machine which was first introduced at the Chicago Packaging Conference. The details of the improved model follow:

The minimum sizes are:

⅞″ high
1¾″ wide
2½″ long

The maximum:

4″ high
5¼″ wide
12″ long

The only limitations to this range are that the package must not be of the maximum or minimum limits in all three dimensions.

The machine not only handles a wide range of sizes, but permits the use of transparent Cellulose (plain or moisture-proof), waxed paper, or glassine, all on the same machine. For this type of wrapping material, the machine is built with roll-feed. If printed transparent Cellulose is used, the machine is equipped with an electric-eye which registers the printed design correctly on the package. The machine may also be furnished for wrapping printed paper wrappers exclusively. In this case, it is built with a sheet-feed mechanism.

A unique method is employed for applying the glue or solvent to the wrapper. The sealing liquid is contained in a large reservoir and is pumped through a circulating system to the various points of application. The daubers that apply the liquid to the wrapper are shaped to fit the folds of the package and the liquid is applied in a predetermined, uniform quantity. There can be no smearing either on the folds of the package or on the discharge belts. An important advantage of this method is that the system can be quickly cleaned merely by draining off the glue and substituting hot water for it.

The machine operates smoothly which is due partly to the fact that rotary paper grippers are used instead of the old type reciprocating grippers, and also to the fact that the machine is built without cams, eliminating hard motions and undue wear.

It operates at a speed of 75 to 85 packages per minute, depending upon the size and nature of the package.

A machine which can handle a wide variety of packages is, of course, an important advantage to a manufacturer putting up his product in various sizes. This flexibility also appeals to manufacturers who are making only one size package, because it provides for the possibility of changing the package size at some future time, and also makes it easy to add new sizes to the line, either permanently or temporarily.

Material handling is becoming one of our major interests. For this reason all literature pertaining to this subject is read with care. No one can doubt that we have not paid as much attention to handling materials as we have to production and packaging. Very frequently one will find a plant well equipped in every respect save handling, and this will be so antiquated that aisles are congested and materials are continually re-handled. In addition to conveyors trucks perform a very useful service and very often can be designed to handle materials more efficiently than conveyors. In this connection the general catalogue of the Colson Company is of interest. This firm builds trucks of every conceivable kind and for handling all kinds of materials. It will pay you to study this catalogue. You will see some truck applications you never thought possible.

Richardson is one of the very few manufacturers specializing in the construction of bins, chutes and control gates. A Richardson installation for dry materials, fitted with control gates and designed to permit direct weighing off, is a very neat piece of work. Where the bins can be loaded from an upper floor the chutes can be so arranged that a portable scale or batching truck can be moved from bin to bin and the batch weighed off in a few minutes.

In a series of new booklets F. J. Stokes Machine Co. tells the story of powder filling and collapsible tube filling. Both of these booklets describe the complete range of sizes of the Stokes line.

Detectogram is the name of a little balancing device for attachment to scales of all kinds to insure accurate weights. When the weight is precise the pointer on the attachment points to zero. Otherwise it swings one way or the other. The company which builds this also makes a postage and parcel post scale. Just drop the package on the platform, press a zone key and read off the postage on the dial.

Recently we had a note on air filters, pointing out their usefulness in connection with cooling creams and ointments. In order to cool creams, especially in summer, many firms use fan or blowers. But this practice is neither wholly effective or sanitary because dust is drawn from all parts of the room and blown over the cream. The only way to avoid this is to

Your Products—

Crystal-clear
Clean, Sparkling!

Give your products the fine polish and brilliance that is a mark of quality,—that brings to the consumer a story of clean and careful manufacture.

Take out all the cloud and sediment with real filtration.

For thirty-five years Kiefer Filters have set the standard of brilliancy in liquids of all kinds.

From our complete line of types and sizes, we can supply the filter that will give best results.

Send a gallon of your product and let us show you.

THE KARL KIEFER MACHINE CO.

CINCINNATI ◆ ◆ OHIO

Filling Machines, Bottle & Jar Cleaning Machines, Corking & Capping Machines, Conveyors, Filters, Pumps, Percolators.

STOKES 15-E Powder Filler filling 63 face powder boxes per minute. Only one operator required for feeding empty containers.

Features

Fast—65 per minute—we believe it the fastest of its type on the market.

Accurate—within plus or minus 1%.

Clean—"No Container—No Discharge Control" and Dust Collector minimize spillage and "float."

Easily "Changed-Over"—accessible adjustments; container holders lift off.

Modern Construction—base-housed mechanism and motor; space-saving design.

Automatic "Take-Off"—eliminates the second operator usually required to remove filled containers.

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Pharmaceutical Equipment Since 1895

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Filling 63 *per minute*

on the NEW STOKES

SINGLE—AUGER

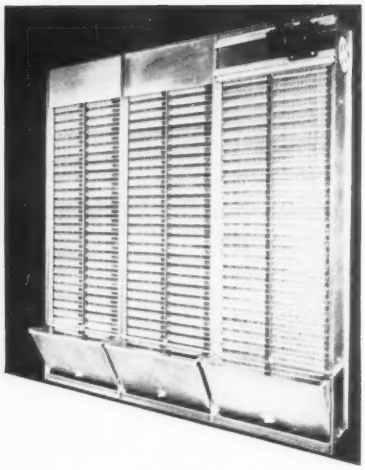
Powder Filler

15-E*

FJS

SEND FOR FOLDER

*One of our No. 15 series. Several models available. See Folder.



Air Filter

cover the belts and put an air filter unit at the lower end. This will enable you to blow clean air over the cooling table. An attached photograph shows an air filter unit the first one to be made entirely of aluminum.

The little machine you saw last month in this department is the new centrifugal separator made by Sharples Specialty Company of Philadelphia. We forgot to include the name with the photo.

Weighing

Most of us think of a scale as a scale and let it go at that. We seldom realize the amount of money which can be wasted in inaccurate weighing. On the other hand it is amazingly difficult to get a large capacity scale that will give fine readings. In batching dry materials it is the rule that some ingredients will be present only in small percentages and these percentages will have to be weighed off accurately. But if the total batch weighs 500 pounds it will be practically impossible to get a dial that will read in ounces. An auxiliary beam must be used to take up the bulk of the weight. In cases like this the dial capacity will be limited to 250 pounds in ounce graduations and the beam will take the remainder. Also the larger the scale the less sensitive is it likely to be, especially in overcoming inertia. This means that careful batching will require breaking down the job into parts and weighing off the lesser elements on more sensitive scales, which means more time consumption. If any of you know of a large capacity, yet sensitive scale, we'd like to know about it. Recently we saw one application of a platform scale using the beam, the dial and a set of pans, the latter being used for the smaller quantities requiring precise weighing. This was the closest approach to a large capacity *sensitive* scale we've seen.

Pounds vs. Gallons

Formulas often read in terms of pounds and gallons. In order to determine the weight of a liquid stated as gallons multiply the number of gallons by 8.33 and the product by the specific gravity of the liquid. For instance the weight of 20 gallons of acetone is:

20 X 8.33 X 0.792 = 131 lbs. 15 ozs.

Conversely to determine the number of gallons a given weight will equal, reverse the process. For instance: how many gallons does 200 pounds of acetone represent:—

200 ÷ (0.792 X 8.33) = 30 gallons 39 ozs.

These calculations will be sufficiently accurate for practical purposes.

A Letter to F. J. Stokes

8/2d of 1932

Mr. F. J. Stokes & Co.

Dear sir I herd of your Furm keaping som mills of all kinds So Iwrite to you to all to fine out Can I purchus A Mill of you all that can grine A powder in A Purvarise condishion as flour ar duss so I am looking for one, can you Acomadate Me That murch and tell me what is the caust of One. . Hopeing to hrer from you Soon yours furturnity

J. D. Moore 408 N 31 St Philadelphia P.A.

New Wrapper

A Chicago firm recently introduced a semi-automatic wrapping machine for wrapping square or oblong packages with transparent cellulose. The operator simply places the wrapper around the package and places it in the machine in the proper position. The machine makes the fold, and folds and seals the ends automatically. Sealing is done with heat and not with adhesives. It is claimed that 600 packages per hour can be wrapped with this machine and one operator.

Sometime ago we had a note in this department about a fountain brush used for marking shipping cases. The company which makes this brush has announced its intention of introducing shortly a fountain glue brush for uses in connection with wrapping and also gluing powder boxes. As the device will be made of aluminum it will be very light and it will operate like a fountain pen.

Another Conveyor

One of the most interesting types of conveyor we've seen is the vibrating type which started as a mine conveyor and is now being used in many industries including our own. It consists simply of a channel or a pipe on the exterior of which at intervals there are vibrating elements. There is absolutely nothing within the pipes or channels and yet vibration will cause any kind of material to flow through them like water. Unfortunately they are limited to the horizontal plane or at best an 18 degree lift. But for cleanliness and completeness of discharge we've seen nothing like it. We tried face powder in one of them and the stuff flowed rapidly through the channel just as though it were liquid, and when the conveyor was empty, there was practically no powder clinging to the sides at all. When one rubbed the channel one could gather just about as much powder as a woman would dust on her face. One of the strange things about this conveyor is that it will convey a heavy package just as rapidly as it will convey loose powder—30 feet a minute. Although the machine operates by vibration it makes practically no noise nor does it communicate any of the vibration beyond its hangers. And most interesting of all is the fact that the conveyor is dustless along its entire length—the only place where dust is evident is at the loading and discharge points where the powder has a fall.

Preventing Gray Hair

Experiments at Louisiana State University indicate there may be a way for retarding or preventing gray hair, says The Associated Press. Progress has been reported in tests for regeneration of hair pigment that may bring the desired result ultimately, an official announcement by the university said.

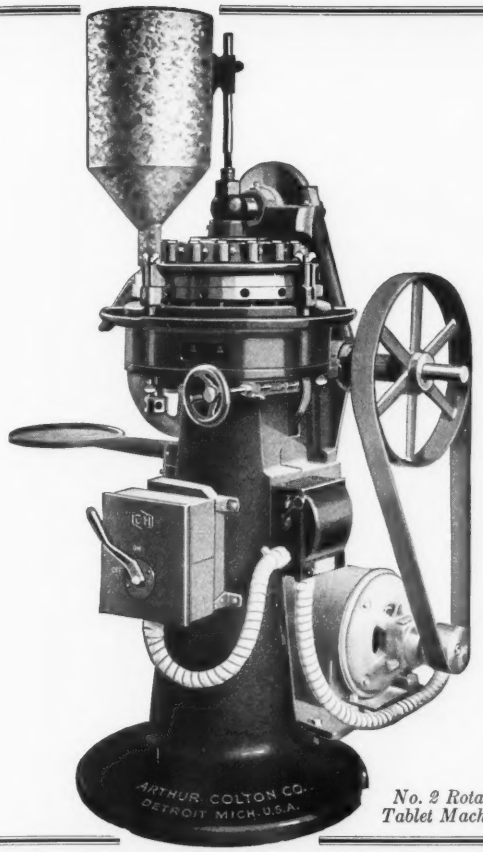
Mrs. Katherine Selby Foote of Natchez, Miss., has conducted experiments on the pigment objective with three gray and graying mice. She has so far found that light and darkness have a definite but inconsistent effect upon pigment formation and that electric shock caused burning and in some cases paralysis.

Positive success of a sort has attended Mrs. Foote's experimental use of resorcinol and pituitrin. The resorcinol, through application, produces darkening of coat color in mice and increases pigment formation, and pituitrin, if given in sufficient quantities, produces a slight darkening of coat color and an increase of pigment formation, notes on the experiment revealed.

Use of adrenalin resulted in a ragged, rough texture and dull colored coat, Mrs. Foote reported, with no color change in the mice hair.

Xylol produced local hyperaemia (congestion or superabundance of blood), causing inhibition of pigment formation in some hairs.

Micro-examination of hairs taken from the mice treated with xylol have revealed a formation closely resembling nucleii in every hair cell. Mrs. Foote said that no definite statement can be made yet regarding the apparent nucleii, but that the experiment will continue.



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New and Improved!

We have no yearly models—but improvements and refinements are being constantly added to Colton machines.

There are over five hundred Colton Rotaries in use.

Superior design, sturdy construction and ease in operation have made this possible.

The No. 2 Rotary Tablet Machine has such desirable features as *positive pressure*, eliminating varying thicknesses of tablets; *hardened steel gear drive*, eliminating frequent replacement of worms used on other makes, and *sliding upper punch holders*, to hold the punches rigidly, enabling the manufacture of special shaped tablets most satisfactorily.

Write for Catalogs.

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THERE'S SALES APPEAL IN . . . . . THE TUBULAR PACKAGE

A powder drum from Cleveland Tubes

A Tubular shape "does something" to a package that's hard to explain but certainly adds to its interest, draws you to it. And then, too, there's the item of economy. Our job is to help develop new, individual tubular packages, to achieve new economies, new sales appeal for our customers. Why not get in touch with us, now?

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TUBE AND JAR FILLER

Introducing the Rodgers standard filler with direct motor drive. This is the cheapest power filler on the market today. It has a capacity up to 50 per minute. Full details and prices on request.

Our latest catalog of drug and cosmetic machinery is now available. We shall be glad to send you a copy. It includes specifications on:

Filling, Closing and Clipping Machines
Powder Mixers & Sifters
Paste & Cream Mixers
Portable Electric Mixers
Bottle Fillers
Powder Fillers
Ointment Mills
Rotary Pumps
Centrifugal Pumps
Jacketed Kettles
Glass Enamelled Tanks

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25 DEY STREET **NEW YORK CITY**
BARCLAY 7-4851 **Established 1890**

Cutaneous Absorption

(*Continued from page 306*)

absorbed by the outer keratin-rich layers which it slowly dissolves. But during this process of altering the tissue cells, the salicylic acid itself undergoes certain transformations. We have here, therefore, a good example of a substance that to a large degree exhausts its own activity in the more superficial layers of the skin, and the lesson it teaches is that primarily its chief value lies in its action upon the epidermis rather than the dermis. The accompanying photomicrograph and explanation gives a far better proof of the previously made contentions than mere words can portray.

While the salicylic acid effect in the skin forms a good illustration of a substance being absorbed by the skin where it exercises its therapeutic action in the main, there are other substances which act in both the epidermis and dermis by entirely different means from the standpoint of chemical interactions. For instance, it is relatively simple to prove that certain substances are absorbed by the epidermis—pass through that tissue without producing demonstrable alterations therein, and then exert certain action upon either the blood vessels or nerves in the true skin.

The extreme vasoconstricting action of epinephrine in a proper vehicle upon the cutaneous capillaries can readily be observed under the microscope. And if anyone is skeptical about the sensory nerve endings in the dermis being affected as the result of skin absorption, let them experience the tingling sensation produced upon those nerve endings from the absorption of a two to five per cent. preparation of phenol, or even ordinary gasoline for that matter.

That there are some substances evidently absorbed by the skin which seemingly pass through this tissue largely unaltered chemically and are then taken up by the blood stream in sufficient quantities to produce both acute and chronic poisoning, of that there is no doubt whatever. Lead, arsenic, phenol and many, many other chemicals used in industry which come into close contact with the skin are capable of being absorbed through that tissue exclusively under suitable conditions. Moreover, that skin absorption is really being dealt with has been demonstrated beyond all scientific doubt by the fact that such absorption has been produced under controlled conditions in which all other means of possible absorption were rigidly excluded.

Practical Application

Of what practical value is all of the preceding rather theoretical consideration of skin absorption to the manufacturer of cosmetics or pharmaceuticals? First and foremost, although the outer layers of the skin do form a formidable protective barrier against cutaneous absorption for many substances under widely varying conditions, unfortunately the industry has been offered, and seemingly has rather uncritically accepted, certain substances supposedly possessing special skin-absorbing qualities, which cannot withstand reasonable scientific tests in this respect. So that it behooves the maker of preparations intended for cutaneous absorption to require proper scientific proof that a substance really is absorbed by the skin, that it enhances skin absorption, or that it is absorbed through the skin mainly unaltered —*and under the actual conditions of usage*, rather than merely in the laboratory.

When friction or other mechanical means are used in applying a substance, then substances may to a degree be absorbed which would not be absorbed otherwise. Obviously this fact may become of the utmost importance in a positive as well as in a negative way. Positively when it is desired that some substance shall be at least slightly absorbed from the lining of the ducts leading from the sweat and sebaceous glands and the hair follicles which is not absorbed from the keratin-rich layers of the outer covering of the skin. Negatively, this fact may be utilized to prevent the absorption of undesirable ingredients into the system by properly cautioning the user to apply, *but not rub into the skin*, a given preparation. Indeed, from the increasing number of skin irritations that are being attributed to cosmetics, it seems that it is just as important to carefully study what bases and vehicles tend to prevent skin absorption of certain injurious substances, as it is to accurately determine what substances are absorbed by the skin.

There is likewise another angle of practical importance from which this matter of skin aborption may be viewed. Under circumstances in which therapeutic success depends upon skin absorption of substances that are only with much difficulty absorbed, it may be desirable to first prepare the skin for more ready absorption by the use of keratolytic agents to lift the barrier imposed by keratin-rich cells.

In conclusion: to allege that the intact skin does not absorb certain substances useful for cosmetic or therapeutic purposes is at variance with the results of scientific research conducted under controlled conditions. Moreover, although it is entirely outside of the scope of this article to dwell upon the nature of the substances capable of being absorbed by the skin, and the varying circumstances under which they may either be most readily absorbed or be prevented from being absorbed, as the case may require, it appears that both the pharmaceutical as well as the cosmetic industry have in the past notoriously neglected this field of fruitful research capable of greatly enhancing the value of their preparations. Too much reliance has been placed upon hearsay evidence and sales talk, and just so long as this attitude is kept alive, so long will cutaneous applications for both cosmetic and therapeutic purposes fail to produce the best possible results.

EMULSIFIER 157

for

Brushless Shaving Creams

A non-irritating and non-greasy brushless shaving cream can now be easily made by using our new EMULSIFIER 157. It also serves as an excellent base for pearly-lustered, non-greasy vanishing creams and for stable oil-in-water type liquid emulsions. Formulae and sample upon request.

Preservatives

NIPAGIN M, NIPASOL M, and NIPABENZYL, chemically pure esters of p-hydroxybenzoic acid. Phenol coefficients: 3, 17, and 109. Neutral and non-irritating.

Recommended for their high efficiency in agar emulsions, gum solutions, eye washes, hair waving preparations, vaginal douches, vegetable oil emulsions, skin creams, and in any products which require an antiseptic or preservative.

Manufactured by the Julius Penner A.-G., Berlin-Schoeneberg, Germany.

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"Give me a pack of cigarettes?"

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St. Louis Office: Fahey Brokerage Co., Cotton Belt Bldg.

Aldehydes in Perfumery

(*Continued from page 316*)

it is of great value in developing a distinct citrus-fruit character. It is a base for cologne saops and it is also widely used in colognes, toilet waters and soap perfumes. It gives a "tang" or freshness to many creations of the rose and orange type which leads some perfumers to say that a rose composition without any citral is no rose at all. In the flavoring industry it is used as a substitute from lemon oil. Its most important use from the viewpoint of synthetic organic chemistry is in the manufacture of ionone.

Its chemical relative, citronellal has the empirical formula $C_{10}H_{18}O$, there being two more hydrogen atoms in this aldehyde than in citral, whose empirical formula is $C_{10}H_{16}O$. Citronellal has a melissa-like odor. It is used in a large number of preparations, including cologne, bergamot, geranium, orange, lemon and rose. It is not very stable in the presence of alkali and therefore a good fixation agent is necessary when it is used in soaps. Citral is even less stable than citronellal in the presence of alkali and decomposes more readily when distilled. Citronellal is the starting material in the manufacture of hydroxycitronellal. This last product is also known as citronellal hydrate, lily aldehyde, cyclosia, muguetrol, etc. It has a sweet lily-lilac fragrance. It can be used for sweet floral type odors possessing new and distinctive notes. As far as the writer knows hydroxy citronellal has never been isolated from any essential oil. Here we have a product which has been synthesized not merely to duplicate what nature has already formed in fruit or flower, but to give the perfumer what he cannot get from living organisms. It is quite stable for use in soaps—another advantage over many aldehydes such as citral and citronellal. This stability is due to the fact that one double bond between two of the ten carbon atoms is saturated as the elements of water are attached to these two carbons. Hydroxycitronellal is used in lily of the valley, cassia, cyclamen, heliotrope, new mown hay, honeysuckle, iris, etc. Both citral and citronellal are found together in the essential oils of related plants. The principal source of citronellal is the Java oil of citronella. The principal source of citral is lemon-grass oil which contains about 70% of this aldehyde.

To return to the subject of open chain saturated aldehydes of the aliphatic series, we note that the next member, undecylic aldehyde or C_{11} is of the rose type, somewhat like its neighbors. It is useful in the blending of flower bouquets. C_{12} (duodecylic or lauric aldehyde), while employed in small quantities, usual with this series, is used extensively. Its odor is more fatty than that of C_9 or C_{10} aldehyde. On dilution, it has an odor that has been described as earthy wood-violet. It is used as a fixative and as a floral note for rose, orange, lily of the valley, narcisse and jasmin. Its isomer, methyl nonyl acetaldehyde, is not as important. Traces of it are used for fresh flowery notes in cyclamen, mimosa, tuberose, violet and other compositions. Tredecylic aldehyde (C_{13}) has no distinct flower perfume and can therefore be used to modify almost any combination. However, because it is so expensive its use is very much limited. The tetradecylaldehyde resembles the C_{13} aldehyde somewhat. It is very useful in blending. The so-called C_{16} aldehyde is really not an aldehyde. Although commonly known as "strawberry aldehyde," it is really an ester, (phenyl methyl glycidic ester). It is made by the action of chloracetic ester on acetophenone, using sodium ethylate as the condensing agent:

$$\begin{matrix}Ph\\Me\end{matrix}\!\!>\!CO+ClCH_2COOEt \longrightarrow \begin{matrix}Ph\\Me\end{matrix}\!\!>\!C\!<\!\!\begin{matrix}O\\\end{matrix}\!\!>\!CHCOOEt+HCl$$

There are a number of other aldehydes, of interest to the perfumer, which are aromatic in the chemical sense as well as in the sense that perfumers use this term. These aldehydes are benzene derivatives. Phenylacetic aldehyde has an odor which is sometimes described as hyacinth, sometimes as honey, sometimes as both. Used alone, it gives no clue to its possibilities as a base for hyacinth and as a fixative, blend, and modifier for such composition types as carnation, cyclamen, wild honey, rose, sweet pea, violet, jonquille.

Alpha-amyl cinnamic aldehyde or jasmin aldehyde has a strong jasmin odor. It is used as a base and fixative in jasmin, lilac, lily and floral types. It is valuable in soap perfumery because of its fastness to alkali. Hydrotropic aldehyde has a balsamic-hyacinth note, giving delicacy and a rich finishing tone. It is also of value in narcissus and jonquille. Hydrocinnamic aldehyde is an isomer of hydrotropic aldehyde. It has a hyacinth character with a cinnamon note. This feature can be understood if one keeps in mind the fact that cinnamic aldehyde has a characteristic cinnamon odor. Hydrocinnamic aldehyde is often a good substitute for the less stable phenylacetic aldehyde but its odor is far less strong. Hydroocinnamic aldehyde has been suggested for jasmin, lily and ylang, to name only a few of the compositions into which it enters. It is also used for the soap bouquets of the above types, as it is fairly fast to alkali. Cuminic aldehyde has an odor recalling orris. It not only finds favor in the confectionery industry but for "distinction" its use is suggested in acacia, carnation and orchidee.

Anisic aldehyde is often referred to as aubepin. It has a fine, clear hawthorn odor. It is widely used in soap powders, creams and toilet waters in many varied combinations. In addition to hawthorn, small amounts of it give interesting results in acacia, cherry blossom, ixora, lotos, new mown hay and in mimosa.

It has not been the intention of the writer to list all the synthetic aldehydes used in perfumery nor to describe all their possibilities. He has selected a number of them, both aliphatic and aromatic, to give the reader some idea of their wide application and to indicate how the laboratory of the organic chemist has supplemented the fields and flowers of nature as a source of supply for the creation of valuable odors.

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It offers a new, exquisite odor with lasting qualities, admirably adapted for use in powder bouquets, fancy extracts and face creams.

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Our Indexes of Prices

(Continued from page 307)

tunately, the subject has been exhaustively treated in Professor Fisher's book "The Making of Index Numbers" and for further information readers are referred to the book which handles a complex subject with surprising lucidity.

First the price of each commodity must be shown as a percentage of the price in the base period. Then each price must be weighted to give it its proper importance. Finally the data must be substituted in the formula which will give the desired average. The formula used here has very wide approval for the type of data available. It is (53) in Fisher's notation, is called Laspeyres' formula, and is used by the U. S. Bureau of Labor Statistics, by Dun's Review, by the Federal Reserve Bulletin, by the National Industrial Conference Board, etc. Weights used are the estimated consumption of each commodity in 1925 by the drug and cosmetic trade, as obtained from production, import and export data. Fisher has proven that errors in weighting, even large ones, are generally compensated and do not greatly affect the result if the weights are of the right order of magnitude. Prices are from DRUG AND COSMETIC INDUSTRY and the preceding "Drug Markets" and "Drug and Chemical Markets."

The price of each commodity in the given month is multiplied by the consumption in 1925 and the products are added. This sum is divided by the sum of 1925 average prices multiplied by consumption. The result is an aggregative index with base year weights. This seemingly complicated procedure must be followed if the index number is to have any significance. The simple index still extensively used is made by dividing prices for the given month by prices for the base year, adding the result and dividing by the number of items. Such an index number has an upward bias, that is, the average shown is higher than it should be and becomes increasingly higher as time goes on. In addition, such an index would give the same importance to changes in the price of alcohol, whose consumption in the industry is about 10,000,000 gallons annually, and to changes in the price of digitalis with annual consumption of 20,000 pounds, which is absurd.

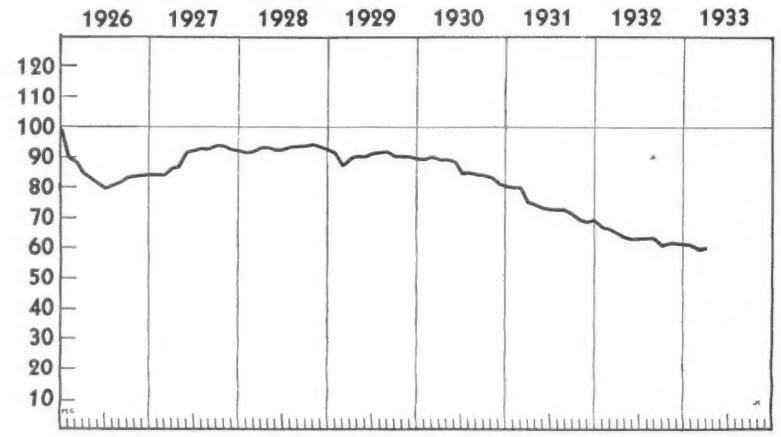
Four of the indexes are of the weighted aggregate type, those for essential oils, botanical, medicinal chemicals and the 50 commodity composite. The fifth, for cosmetic raw materials is unweighted because of the impossibility of estimating consumption for most of the commodities. It is, however, an unbiased index, as it was constructed by multiplying the 25 percentages together and then taking the twenty-fifth root by means of logarithms. If enough data for consumption becomes available, the preferred type of index will be calculated.

The second problem in making index numbers involves the correct selection of commodities, called "sampling." If it were possible to average all commodities as indicated above, this problem would not appear, but the labor of calculation would be prohibitive, so that selection must be made. The most important commodities in each group have been chosen and there is every reason to believe they are representative of the group as a whole. Lists of these commodities, with their weights, are given. Note that consumption is not always total consumption, but consumption in this industry. It would be illogical to use 100,000,000 gallons (the total) for alcohol when only ten per cent. of that amount enters the drug and cosmetic industry. The larger figure would so increase the importance of alcohol that no other price movements would be apparent.

(Other indexes are given in market section)

15 MEDICINAL CHEMICALS — WEIGHTED INDEX

1925 Average Prices Equal 100



	1925 Consumption	
Alcohol	10,000,000	gal.
Aspirin	1,500,000	lbs.
Barbital	30,000	lbs.
Bismuth	400,000	lbs.
Boric Acid	1,500,000	lbs.
Citric Acid	8,000,000	lbs.
Cod Liver Oil	75,000	bbls.
Cream Tartar	5,000,000	lbs.
Iodine	500,000	lbs.
Menthol	300,000	lbs.
Mercury	6,000	flasks
Mineral Oil	300,000	gal.
Morphine Sulfate	100,000	oz.
Potassium Bromide	1,000,000	lbs.
Quinine Sulfate	2,500,000	oz.

INDEXES

	1926	1927	1928	1929	1930	1931	1932	1933
Jan.	*98.1*	*84.1*	*92.5*	*92.6*	*90.1*	*80.8*	*69.5*	*61.7*
Feb.	89.8	84.1	91.2	91.2	89.6	80.2	67.1	61.3
Mar.	88.2	84.1	92.1	87.8	90.2	80.4	66.9	60.2
Apr.	*84.6*	*86.3*	*93.0*	*90.1*	*89.1*	*75.5*	*65.0*	*60.5*
May	82.5	86.5	92.9	90.7	89.2	74.3	63.9	
June	81.7	91.7	92.6	90.3	88.9	73.6	63.0	
July	*79.5*	*92.2*	*92.7*	*91.2*	*84.7*	*73.0*	*63.2*
Aug.	80.6	92.7	93.5	91.5	85.0	73.0	63.4
Sept.	81.7	92.6	93.4	91.6	84.3	72.9	63.2
Oct.	*83.2*	*93.8*	*93.8*	*90.7*	*84.5*	*71.3*	*60.9*
Nov.	83.4	93.6	94.5	90.6	83.8	69.6	61.9
Dec.	83.8	92.7	93.5	90.7	81.7	68.7	61.9

News

Regulatory

New Food & Drug Act

A measure now being drafted, if enacted, will completely revise the food and drugs act to give the Federal Government control over the manufacture and sale of drugs, cosmetics and foods. Dr. Rexford G. Tugwell, assistant Secretary of Agriculture is reported to be preparing the bill which is expected to go to Congress with an accompanying message by President Roosevelt, within the near future.

The new bill is said to propose giving the Department of Agriculture control over advertising, set up a licensing system, and permit going beyond the tests and standards of the United States Pharmacopoeia and the National Formulary.

The new bill, it is reported, will provide criminal penalties for false advertising in any manner, including by radio, and the advertising agency which prepared and distributed the advertising matter will be made jointly liable with the manufacturer of the product. The first proposal was to make the publisher of the periodical carrying the advertising jointly liable, but the present draft of the bill confines the liability only to the manufacturer and the advertising agency.

The licensing provision is intended to give officials access to plants and to remove the weakness in the law which permits action only when a product crosses a State line. Under this proposal, the department could prevent the manufacture of a product of which it did not approve or could stop its manufacture during a trial or after a conviction, instead of waiting for opportunities to sieze the goods after passing into interstate commerce.

Dependence on the food and drugs act, as it applies to drugs, on the provisions of the United States Pharmacopoeia and the National Formulary has long irritated the enforcement officials, because these publications are drawn by extralegal bodies, are revised only once in ten years, and the machinery of revision is very slow, cumbersome, and conservative. It frequently happens that the department is prevented from proceeding against a product which it believes unfit for the market because it technically complies with the pharmacopoeia, while there are often higher standards or newer analytical methods in existence than those contained in that book.

Another provision which is being considered is one to prevent the sale of drugs which the department believes to be dangerous. Such a case was that of radium-active waters which, in their labels complied, with the food and drugs act but which the department felt should not be taken except under the care of a physician. At least one death was directly attributed to the use of such radium water. Powerful drugs, such as thyroid extract and acetanilide, could also be barred under this provision.

Extension of the law to cover cosmetics may also be included in the administration's program. The use of slack-filled packages and containers so shaped as to appear to hold more than the actual contents may be prohibited. Consideration is also being given to a requirement that manufacturers of foods and drugs certify the purity or grade or standard of their products, and possibly to a strengthening of the food standardization powers of the department.

In brief, the bill proposes to:

1. Censor food and drug advertising.
2. Amend the Sherley amendment in such a way that the Government would have less difficulty in establishing the question of fraud.
3. Practically turn over to the Government the U. S. Pharmacopoeia and give the Secretary of Agriculture power to adopt for administrative purposes new standards not now included in the U.S.P.
4. Govern slack packages in foods.
5. Establish a limited license system whereunder a manufacturer of drug products must obtain a license to introduce his product in interstate commerce.
6. Include cosmetics within the definition of drugs, so that cosmetic packages and advertising would be subject to all of the regulations and provisions of the act.
7. Tighten up the penalties under the Food and Drugs Act.

Phenolphalein Laxatives

Many different kinds of sugar-coated or chocolate-coated laxatives, put up in such a way as to resemble chewing gum or candy, are on the market today and careless use of some of them is injurious to children or adults, according to Dr. F. J. Cullen, Federal Food and Drug Administration. These laxatives come in various forms, such as pressed fruits, mints, small cubes, or lozenges, sometimes brightly colored, and are packaged attractively. Practically all of them contain phenolphthalein, a drug known to injure the tissues of the liver. There is an additional danger in excessive consumption of these tablets, especially by children, in that an individual might get an overdose which would be injurious to health, says Dr. Cullen.

"Coated laxatives are nearly always correctly labeled as being laxatives or cathartics, therefore medicines," according to Doctor Cullen, "but the likelihood of a child reading the label is small. Even some adults do not take the precaution to scrutinize statements made on labels and mistake the laxatives for confections. The Federal food and drugs act requires that a laxative prepared in chewing gum or confection form be labeled to indicate that it is a medicine, not a confection. Manufacturers, generally, are complying with this obligation and are labeling their laxatives and cathartics in full compliance with the law."

Drug Seizures

Federal Food and Drug Administration caused seizure in March of 121 consignments of foods and drugs found to violate the national pure food and drug law, reports W. G. Campbell, Chief. The Administration also sent to the Solicitor of the Department of Agriculture, with recommendations for prosecution, cases involving 28 stocks of foods and drugs. Notification was received from Federal courts of the termination of nine criminal prosecutions of violators, all of which resulted in fines, one running as high as $600.

Federal seizures for March covered a wide variety of drugs—misbranded stock remedies; proprietary remedies unjustifiably recommended as having curative value for nervous disorders, high blood pressure, anemia, typhoid, scarlet fever, and rheumatism; fluid extract of ergot; aspirin tablets.

Criminal prosecutions terminated in March, or for which the Administration received official notice of termination, resulted in the imposition of fines against the following manufacturers:

Sharp & Dohme, Inc., Philadelphia, Pa., $600. Violation consisted of interstate shipments of tincture aconite which fell below standards of strength and purity required under the Pharmacopoeia.

John Wyeth & Brother, Inc., Philadelphia, Pa., $200. The company's offense involved interstate shipments of pharmaceuticals which fell below the standard and quality under which they were sold.

John A. Borneman, Norwood, Pa., $100. Borneman shipped from Norwood to Laurel Springs, N. J., certain consignments of acetphenetidin and strychnine sulfate tablets which, in strength and purity, fell below the professed standards of quality under which they were sold.

League Approves Narcotic Control

The League of Nations convention limiting the manufacture of narcotics to medical and scientific needs and fixing a method of distribution, deemed a big step in the battle against the narcotics traffic, will be effective July 9, according to the *N. Y. Times*.

This will be followed by an American drive to secure limitation of the production of opium and cocaine, it is believed.

The narcotics convention, drawn up after weeks of investigation, provides for the creation of an office for international supervision of narcotics. Each of the twenty-five or more ratifying States would announce its medical and scientific needs,

and manufacture would be restricted to the total required.

Prohibition and Narcotics

A plan to reunite the bureaus of prohibition, narcotics, and industrial alcohol has been proposed by A. V. Dalrymple, newly appointed Director of Prohibition in the Department of Justice.

He announced that he believed increased efficiency and greater economy could be achieved by a merger of the three groups, and that he would make an intensive study of the proposal with the view of making recommendations in the near future.

The new director, who served in the old prohibition unit of the Bureau of Internal Revenue several years ago, is tentatively considering a return to the plan used in the early months of the Wilson administration, under which there was centralization of enforcement of the statutes relating to prohibition, narcotics, and permissive use of alcohol.

Such a merger was not previously in the tentative program of government reorganization as sketched by a group of administration experts under the direction of the Bureau of the Budget, and the plan is largely Mr. Dalrymple's own idea. Whether it will be approved by his superiors will depend largely on the result of further study in the proposal.

A. M. A. Accepts

DIPHTHERIA TOXIN, HIXSON

Diphtheria Toxin-Antitoxin Mixture and Diphtheria Toxoid, manufactured by Hixson Laboratories, Inc., Johnstown, O.

POLLEN, LEDERLE

Pollen Antigens-Lederle, manufactured by Lederle Laboratories, Pearl River, N. J.

A. M. A. Rejects

PHYLLICIN

Phyllicin, manufactured by Bilhuber-Knoll Corp., Jersey City, N. J., because it does not present sufficient originality in itself or sufficient advantage over theophylline sodio-acetate-N. N. R.

A. M. A. Considers

DILAUDID

Dilaudid (di-hydromorphine hydrochloride), manufactured by Bilhuber-Knoll Corp., Jersey City, N. J., including a report on the subject by Nathan B. Eddy of Ann Arbor, which concludes that "Clinical trial has not shown that dilaudid is free from tolerance and addiction evoking properties, and, while side actions such as nausea, vomiting and constipation seem to occur less frequently after it than after morphine, the prolonged administration of dilaudid should be entered on with as much caution as would be exercised with morphine itself."

A. D. A. Accepts

HALIVER OIL, ABBOTT

Haliver Oil with Viosterol 250-D-Abbott and Soluble Gelatin Capsules of the same, manufactured by Abbott Laboratories, North Chicago, Ill.

WARD'S TOOTH PASTE

Ward's Tooth Paste, manufactured by Montgomery Ward & Co., Chicago.

LACTONA

Lactona Dentifrice, manufactured by Pfanstiehl Chemical Co., Waukegan, Ill., distributed by Lactona, Inc., St. Paul, Minn.

Associations

F. W. D. A. on Prices

The Federal Wholesale Druggists' Association has formulated a declaration of its position taken at the recent semi-annual meeting with respect to manufacturers' desire that the wholesale druggist maintain the list price of preparations. The gist of the F. W. D. A.'s stand is that the retail members of its own group should be allowed the same buying privileges as are extended to direct-buying chainstore organizations. "To this policy of selling direct to the chain organizations and allowing them wholesale discounts and at the same time insisting that the independent retail druggists that are customers of the co-operative wholesale drug houses will not be allowed through their wholesale buying connections to own the merchandise at as low a cost price as the large chain-store retail drug organizations, the Federal Wholesale Druggists' Association is unalterably opposed, for the reason that it places a large number of independent retailers in a position of great disadvantage to meet the active competition of the large chain-store organizations."

The Association will hold its 1933 convention in Chicago, September 25, 26 and 27.

Proprietary Ass'n Meeting

The Proprietary Association will hold its fifty-first annual meeting in the Hotel Biltmore, New York, May 24 to 26. There will be a registration fee of $5.

Trade Section Service

Arrangements have been completed by the executive committee of the drug, chemical and allied trades section of the New York Board of Trade, Inc., whereby members will obtain a monthly service advising them of bills which will be introduced in the New York Assembly and the House of Representatives at Washington. Since many of them will vitally affect the drug and chemical trade, the new service should prove of considerable value to members.

Francis J. McDonough, chairman of the section, appointed S. W. Fraser, of Burroughs, Wellcome & Co., chairman of the committee on legislation for the coming year.

Other members of the executive committee who attended the meeting were: S. B. Penick, of S. S. Penick & Co.; Gustave Bayer, of Merck & Co.; C. Leith Speiden, of Innis, Speiden & Co.; A. A. Teeter, Chas. Pfizer & Co.; Victor E. Williams, Monsanto Chemical Works; Chas. A. Prickitt, The Upjohn Co.; A. Bakst, of Bakst Bros., and Ray Schlotterer, secretary.

A. D. M. A. Meeting

American Drug Manufacturers Association will hold its twenty-second annual meeting at The Homestead, Hot Springs, Va., May 8 to 11. The section meetings will be held on May 8, with the first general session of the association on May 9 and the annual dinner on the evening of Wednesday, May 10.

The biological section of the association will again hold two sessions. At the first, opening at 9 A. M. May 8, reports will be presented for discussion from the committees on diphtheria toxoid, anaerobic antitoxins, and antipneumoccic serum standardization. It is expected that Dr. George W. McCoy, director of the National Institute of Health, Washington, will attend this session. At the second

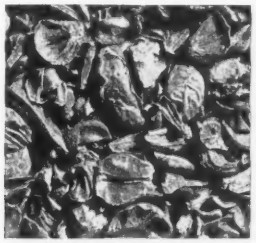
N. H. Noyes

session in the afternoon of the same day, the plan, according to S. D. Beard, chairman, is to discuss problems pertaining to biologic products used in veterinary medicine. It is expected that Dr. D. I. Skidmore, chief of the Division of Virus-Serum Control of the United States Bureau of Animal Industry will be present.

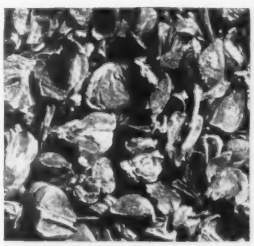
The scientific section, F. O. Taylor, chairman, meets at 9 o'clock, May 8. The subcommittee on alkaloid and drug standards, H. W. Rhodehamel, chairman, is collecting for discussion data pertinent to standards which are likely to be official in the next U. S. P. The subcommittee on analytical assay methods headed by W. J. Rice, has devoted attention to several problems that seemed to be of

Are You Gambling

On Quince Seed?



Are the samples of seed shown equal in mucilaginous yield? Frankly, we didn't know until we *tested* them. We then found lot A worth twice as much as lot B.



If you buy your quince seed on "appearance" or if you are influenced by what seems to be an attractive price, you are gambling on the results. No one can judge the value of a seed simply by looking at it. The only intelligent way is to test for quantity and color of mucilage.

We can *tell* you that you get more for your money in POWCO BRAND Quince Seed, but for your own protection *prove* it to yourself. If you are not familiar with the test we developed for the protection of our customers, write us for details.

Send for samples and compare.

As producers of the widest range of powdered neutral soaps, we can duplicate or furnish from standard production the exact soap characteristics you require—*at a substantial saving in cost to you.*

Our concentrated shaving cream base eliminates risk of production failures and enables you to produce the finest type of finished shaving cream at low cost.

JOHN POWELL & CO., Inc.

114 East 32nd Street, New York, N.Y.

Tested Quince Seed • Powdered Neutral Soaps • Concentrated Shaving Cream Base

TESTED PERSIAN QUINCE SEED

pressing importance. These relate to some proposed changes in the U. S. P., and to certain items which have been the subject of investigation by the Food and Drug Administration.

The pharmaceutical section H. W. Rhodehamel, chairman, is scheduled to convene at three P. M., Monday, May 8. Three very important committees are to report: the contact committee, the

Carson P. Frailey

catalog simplification committee, the hydrogen-ion concentration committee.

The contact committee has during the past year had before it such problems as Testing Ampoules for Sterility; Inclusion of additional tablets in the National Formulary and Tolerances for the same; A discussion of tolerances of filled capsules; Investigation of the pharmacological assay methods and tolerances proposed for the forthcoming U. S. P.

The catalog simplification committee will discuss in detail—"Bichloride of Mercury Tablets."

The session of the committee on sales and advertising will be held at 9 A. M., May 11. S. DeWitt Clough, president of Abbott Laboratories, Inc., who is chairman of the committee, reports that the following subjects have already been selected and assigned:—"Cost Accounting of Sales," to J. K. Lilly, Jr., of Eli Lilly & Co.; "The Economics of Price-Standardization," to R. D. Keim, of E. R. Squibb & Sons; the Success of Combination Detail and Sales Work by One and the Same Representative, R. M. Cain; Do Doctors Preserve Advertising Literature?, Harry C. Phibbs.

The Homestead has provided a rate of $9 a day, on the American plan, for the conventioners. According to Arthur D. Armstrong, of Fritzsche Brothers, New York, chairman of the entertainment committee, this rate is for a room with private bath, but arrangements can be made for suites of two rooms with connecting bath.

A. M. T. A. Meeting

The Associated Manufacturers of Toilet Articles will hold its thirty-eighth annual convention at the Waldorf-Astoria, New York, April 25, 26 and 27. Business sessions will be held each afternoon directly following luncheon, while the entertainment program is featured by a theater party and dance on the night of the twenty-fifth and the annual banquet on the night of the twenty-seventh.

The first business session, following luncheon on the first day will be chiefly

Cecil Smith

devoted to the actual business of the association, with reports from the various committees including legislative, financial and trade practice, the annual report of the president, Cecil Smith, and the report of the consul, Abel I. Smith.

William Resor of J. Walter Thompson Co., will be the main speaker at the meeting on the following day. He will

Charles S. Welch

report on the work now being done by the Association of National Advertisers and the American Association of Advertising Agencies, with the cooperation of publishers, to work out sound advertising ethics and standards.

Lincoln Filene of the Filene Department Store, Boston, will be the principal speaker of the closing day's session. He will talk on the general subject of better selling methods and how the manufacturer may educate the individual retailer or salesperson to know the merchandise and thus do a better selling job. There will be other speakers at both these sessions whose names and subjects are unannounced at the time this is written.

The Entertainment Committee under the chairmanship of Roy Root, is offering a varied program. On the evening of Tuesday, April 25, a theatre party is planned, followed by an after-theatre supper dance. The show will be "Strike Me Pink" with Lupe Velez and Jimmie Durante. After the theatre, members and guests will return to the hotel to attend a supper dance which will be held on the roof of the hotel.

The annual banquet will take place on the evening of Thursday, April 27. This will also be held on the roof of the hotel with special entertainment and novelty surprises.

The entertainment committee recommends that convention-goers buy the complete $20 coupon book for its economy, it is also possible to purchase separate tickets for the various events, at the following prices: Theatre and supper dance (including transportation), $12; Supper dance, exclusive of theatre, $6.50; Banquet, $10; Extra luncheon tickets $2 each.

Specially low-priced hotel accommodations at the Waldorf-Astoria have also been arranged for by the entertainment committee.

The treasurer of the committee is William C. Young, 200 Fifth Avenue, New York.

A. M. T. A. Acts on Advertising

The executive committee of the Association recently adopted a resolution designed to establish trade practices in respect to advertising. Its text is as follows:

"It is moved that the executive committee of the Associated Manufacturers of Toilet Articles authorize the trade practices committee to put the trade publications in our field on notice that they will expect such publications in the future to submit before publication to the manager of the Associated Manufacturers of Toilet Articles advertising proofs and/or reading notices which bear statements open to any suspicion of being untruthful or unwarranted, especially as to claims for new products or claims of articles or preparations which may be injurious to public health.

"It is further moved that the executive committee authorize the trade practices committee to have analyses made of preparations under investigation whenever necessary. Also, that the trade publications be advised that they can submit to the committee of trade practices for such analysis any specimens of products presented for advertising which shall be open to any question as to the truthfulness of the claims set forth in such advertising.

This finer, whiter pigment does not irritate the skin...

USES FOR
PURE TITANIUM OXIDE
Vanishing Creams • Powder Creams
Cold Creams • Bleaching Masks
Bleaching Ointments • Bleaching
Lotions • Nail Polishes • Face Pow-
ders • Tooth Pastes • Body Powders
Talcums • Dry Rouges • Liquid
Powders • Baby Powders • Foot
Powders • Cake Powders • Phar-
maceutical Ointments

● Pure Titanium Oxide has received the endorsement of an important group of cosmetic manufacturers who use this modern pigment in the formulation of superior products free from irritating effects. ● Because it is chemically inert, Pure Titanium Oxide will not produce unpleasant effects on the most sensitive skin. It will not react with other ingredients and cause chemical changes, rancidity or deterioration. This pure white pigment also has exceptionally fine particle size and high tinting strength. For this reason, only small amounts are required to produce desirable effects. It is unexcelled in covering power and adhesion. ● Pure Titanium Oxide is manufactured under strict laboratory control to assure a product of highest purity and uniformity. It has a definite place in improving the appearance, texture and color of a long list of products. ● It will pay you to investigate Pure Titanium Oxide and learn how it can improve your products.

TITANIUM PIGMENT CO., INC.

Manufacturers of TITANOX-B (Barium Base)
TITANOX-C (Calcium Base)... PURE TITANIUM OXIDE

111 Broadway, New York, N. Y.; Carondelet Station, St. Louis, Mo.; Pacific Coast Distributor: National Lead Co. of Calif., 2240 24th St., San Francisco, Calif.; Canadian Distributor: Wilson, Paterson, Gifford, Ltd., 101 Murray St., Montreal – 132 St. Helen's Ave., Toronto, Ont.

PURE TITANIUM OXIDE

Companies

Mary Garden Sues Rigaud

Mary Garden, opera and concert singer, testified before Supreme Court Justice Schmuck in New York, April 10, in her suit against the Parfumeries, Rigaud, Inc., to restrain it from using her name for a brand of perfumery. She admitted that as a "friendly gesture" she gave an agent of the defendant company permission to use her name in 1909.

Counsel for Miss Garden sought to show that in 1931 she received an offer from another perfumery company for the use of her name, but Justice Schmuck sustained objections. Evidence for the defendant showed that Miss Garden gave written authority in 1910 to its agent, Dr. Mason, for the use of her name, and that the company has been marketing "Mary Garden" perfume ever since. The court reserved decision.

Clarified Lemon Oil

The products department of the California Fruit Growers Exchange has started an extensive sales campaign for a new product which the Exchange has developed, namely, "clarified" lemon oil. This clarified lemon oil, it is stated, has a finer flavor, aroma and color and when dissolved in alcohol makes a solution that has a true lemon color and is crystal clear. It does not cloud, leaves no sediment, has no filtration and leaves no waste. It is being sold exclusively in the American market by Dodge & Olcott Co. and Fritzsche Brothers, Inc., New York.

Synthetic Plastics Licenses Bakelite

Synthetic Plastics Co., New York, manufacturer of molding powders sold under the trade name "Beetle", has granted a license under its patent rights to the Bakelite Corp. for the field of urea resin molding compositions.

Included in the patents of the Synthetic Plastics Co. are those covering the pioneer inventions of Dr. Fritz Pollak and Dr. Kurt Ripper, of Vienna, which were acquired from the Pollopas Co. of England, and also those covering the technical developments of the British Cyanides Co., England, as well as the subsequent developments of the laboratories of the American Cyanamid Co. of which company Synthetic Plastics Co. is a subsidiary.

Greeff Engages Selden

R. W. Greeff & Co., announces the addition to its staff of J. M. Selden, Jr., formerly vice-president and director of Selden Co., Pittsburgh. Because of the need of additional space, the Greeff company has moved from the 33rd floor to the 18th floor of 10 East 40th st., New York.

Colgate Changes

S. Bayard Colgate has been elected president of the Colgate-Palmolive-Peet Corp., Chicago. It has been reported that the Colgate interests, which have had a minor part in the management since the merger of the Colgate company with Palmolive several years ago, will be more active.

C. S. Pearce, former president, has been elected chairman of the board, and A. W. Peet has been made honorary chairman. N. N. Dalton has been made executive vice-president; E. Little, vice-president in charge of sales and advertising; C. S. Dewey, vice-president in charge of finance; R. B. Colgate, vice-president in charge of research; A. J. Lansing, secretary; L. C. Proesch, treasurer, and A. E. Johnston and H. E. Logan assistant secretaries.

Bush Appoints Walsh

W. J. Bush & Co., Inc., New York, has announced that Dr. Freeland J. Dunn, for many years manager of the company's Chicago office, has temporarily retired because of ill health. He has been succeeded by Frank C. Walsh, for sixteen years connected with Henry W. Peabody & Co., New York.

Strong, Cobb Appoints Nale

Strong, Cobb & Co., Inc., Cleveland, has announced the appointment of D. C. Nale, as eastern territorial manager. He was formerly associated with Parke-Davis & Co., Oxzyn Co., and Heather Co., of which latter company he was president.

J. B. Dowd

J. B. Dowd, Inc., New York, cosmetics, has leased space at 121 E. 24 st., that city, and plans to make its headquarters at that address.

Merrill Drug Co.

Merrill Drug Co., New York, has been established by B. G. Merrill who has been associated for many years with the crude drug trade.

Bogert Lectures

Professor Marston T. Bogert of Columbia University delivered his lecture "Around the World in Search of Perfumes" at the University of North Carolina, Chapel Hill, on April first, at the University of Florida, Gainesville, on April 3rd, and at the Huntington Club, Savannah, Georgia, on April 7th.

National Appoints Post

Dr. C. I. Post has been appointed by the National Oil Products Co., Harrison, N. J., as manager of its department handling "Vitex," a new vitamin D extract which was recently made available for improving the nutritional value of bread and milk.

Firmenich Returns

Andre Firmenich of M. Naef & Co., Geneva, Switzerland, aromatic chemicals and perfume specialties, sailed for home April 5th on the "Aquitania" following a visit of six weeks with his firm's American representatives, Ungerer & Co., New York.

During the course of his stay in this country, he visited the Ungerer customers

Andre Firmenich

in the leading cities of the East and Middle West, principally Boston, Philadelphia, Cincinnati, St. Louis, Chicago, Detroit and Toronto, in addition to calling on the trade in the New York Metropolitan district. He was accompanied on his trips by Rupert C. Watson, who in the future, will devote most of his time to selling and further developing the Naef products in this country for Ungerer & Co. and in conjunction with their various sales representatives.

Anusol Trade-Mark Suit

In the case of Schering & Glatz, Inc., versus the American Pharmaceutical Co., Philip Katchurin, (head of the company), and Chemical Foundation, Inc., regarding the right to use of the trade-mark, "Anusol," the Court of Appeals of the State of New York has decided that the counter-claims of the first two named defendants should be eliminated and held in favor of them, and the case is referred back to the Supreme Court of New York to be tried on its merits.

These counter-claims, numbering four, are set up in the answer of the first two defendants to the suit, in addition to 15 separate and distinct defenses. The first two counter-claims refers to two alleged interferences by the plaintiff with the business of the defendants, and damages of $40,000 are asked for each of the two counter-claims, or a total of $80,000. The third counter-claim asks for a declaratory judgment to the effect that the trade-mark "Anusol," was the property of the Chemical Foundation, Inc. This counter-claim brought the Chemical Foundation into the suit as an impleaded defendant. The fourth counter-claim charges conspiratory between the Chemial Foundation, Inc., and the plaintiff, Schering &

Individualized Perfumes for COSMETICS

The most satisfactory cosmetics are those perfumed with due consideration to the individual properties of each cosmetic . . . "custom-made" perfumes, they might be called, because they are made specifically for each preparation . . . Fritzsche Brothers' service will ascertain what perfumes will be most satisfactory for your cosmetics and then prepare an individualized perfume for it. Send for special literature and prices.

●POWDERS
Chypre
Gardenia
Jasmine
Eastern Bouquet

●CREAMS
Wistaria New
Apple Blossom
Orange Blossom
Nile Lily

●LOTIONS
Fougere
Lavender
Orchid
Cucumber

●HAIR PREPARATIONS
In addition to the standard perfumes, we have added to this group a few new unusual types.

FRITZSCHE BROTHERS INC.

Proprietors of
PARFUMERIES DE SEILLANS
Seillans, France

118 W. Ohio Street
Chicago

●

78-84 BEEKMAN ST.,
NEW YORK, N. Y.

●

Sole Agents in U. S. and Canada for
SCHIMMEL & COMPANY
Miltitz (near Leipzig) Germany

FRITZSCHE BROS. of Canada, Ltd.
77-79 Jarvis Street, Toronto

Glatz, Inc., and asks a composite judgment of $20,000 from the two.

The case arose through Schering & Glatz, Inc., bringing suit against the first two named defendants charging that the two defendants had violated the trade-mark, "Anusol", which mark had been used for a suppository manufactured by a German company prior to the war and for which company, Schering & Glatz, Inc., were sales agents prior to the war. An injunction and accounting were asked for, it being claimed that the trade-mark belonged to Schering & Glatz, Inc.

The suit was tried in the New York Supreme Court, and from there went to the Appellate Division for review. The Appellate Division reversed the decision of the lower court and struck out the four counter-claims of the defendants. Upon appeal to the State Court of Appeals, the decision of the Appellate Division was reversed, it being stated that the Appellate Division was in error in striking out the four counter-claims.

American Pharmaceutical Co. and Philip Katchurin in answer to the original suit, stated that the trade-mark was owned prior to the war by a German manufacturer and was subsequently seized by the Alien Property Custodian and turned over to the Chemical Foundation. However, no records could be found to prove that this mark had been sold by the Foundation to Schering & Glatz. But the defendants obtained the court's assistance in having a record produced which, it was stated, showed that the sum of $11,500 had been paid by Schering & Glatz to the Chemical Foundation for this mark, though there was no record brought out to indicate such sale. Attorneys for the plaintiff refused to produce this evidence, and it was later presented to the court and subsequently given to the attorneys for the defendants by order of the Appellate Division, as part of the record of the suit.

The defendants pointed to the record, which showed that when Schering & Glatz, Inc., in October, 1929 had attempted to record the trade-mark, "Anusol," as its property, the Chemical Foundation entered an objection, asserting that the mark of the Foundation because of its seizure during the war as an alien property. Defendants further pointed out that decision as to ownership had been withheld by the Patent Office and in March 1929 the Chemical Foundation withdrew its opposition and registration was granted.

The defendants, therefore, charged that this action by the Foundation had been taken to give Schering & Glatz a colorable claim to the ownership of the trade-mark so that Schering & Glatz might attempt to mulct the defendants for damages, the defendants having used the mark for four or five years previously. It was asserted, therefore, by the defendants that the plaintiff and the impleaded defendant, the Foundation, were guilty of a conspiracy.

Organic Products, Inc.

Arthur W. Mudge

Charles A. Swan

Organic Products, Inc., has been organized with headquarters at Mamaroneck, N. Y., by Arthur W. Mudge and Charles A. Swan. Both of these men are well known to this industry, the former having been associated with Newport Chemical Works and the latter with Antoine Chiris Co. for many years.

Benkert Appoints Tysdal

W. Benkert & Co., Inc., New York, crude drug importers, announces the appointment of the following representatives: E. M. Tysdal, 325 W. Huron st., Chicago, and Fahey Brokerage Co., St. Louis.

Du Pont Makes Camphor

E. I. du Pont de Nemours & Co. has begun the production of synthetic camphor at its Deepwater Point, N. J., plant. The process is the outgrowth of research and development work conducted by the du Pont company and the Newport Co., Carrollville, Wisc. The base of the synthesis is turpentine. The expectations are that the output of this plant will shortly be sufficient to assure the maintenance of the conditional tariff schedule of the act of 1930.

The duty on synthetic camphor is 5 cents per pound. The tariff act specificially authorizes the President to reduce the duty by proclamation to one cent per pound, effective after six months, if, in the six months preceding June 17, 1933, domestic production by quantity did not exceed 25 per cent. of domestic consumption, The determination of the volume of domestic production is delegated to the United States Tariff Commission. The commission began an investigation December 21, 1932.

Hercules Terpenes

Hercules Powder Co., Wilmington, Del., has developed a number of new terpene compounds including alphapinene, used in large quantities in synthetic camphor production, abietic acid, borneol, bornyl acetate, bornyl chloride, dipentene, fenchyl alcohol, fenchyl acetate, fenchylamine, fenchone, methyl abietate, terpin, terpin hydrate, alphaterpinene, alphaterpineol.

Abouchar Appoints Skinner

W. King Skinner, formerly with D'Orsay Perfumeries Corp., and before that with A. A. Vantine Products Corp., has been appointed sales manager for New York, New Jersey, Pennsylvania and the New England States by Abouchar & Co., Inc., New York.

Wechsler on Sulfonates

An address on "Aliphatic Sulfonates" was delivered before the Lehigh Valley Section of the American Chemical Society at a meeting held at Easton, Pa., on March 21, by Ralph Wechsler, technical director, National Oil Products Co., Harrison, N. J.

Dick Joins Uhe

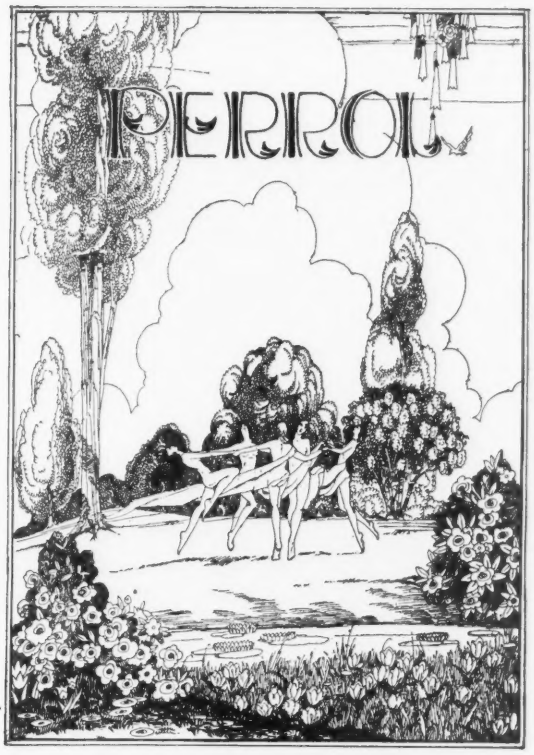
E. R. Dick, formerly with the Sherka Chemical Co., has become associated with A. C. Schoenewaldt in the chemical division of George Uhe, Inc., New York.

Hymes Bros. Reorganized

Hymes Bros. Co., New York, has been reorganized with Jacob Hymes as president and Albert Dublon, secretary and treasurer.

Bush Explosion

An explosion of some severity occurred on March 30th at the Mitcham distilleries of W. J. Bush & Co., Ltd., three company employees being unfortunately injured. Mitcham is located to the south of London in the county of Surrey and is famous as a center for English lavender. We understand that the unfortunate occurrence has not interrupted the company's service. The chief plant and offices of W. J. Bush & Co., Ltd. are at Ash Grove, Hackney, London, British branch plants being located at Mitcham, Surrey and Widney, Lancastershire.



What you can count on with PERROL

1—By itself, a wonderful cream odor.

2—By itself, a beautiful, flowery perfume.

3—Extremely fine powder odor when modified for the purpose.

4—Above all, a most valuable ingredient in your own compositions where you want the *real floweriness* of fresh cut blossoms. Not any one flower, but the dewy freshness of a morning bouquet. Use it 5% to 35% in flower compositions.

Send for samples

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Manufacturers and Importers of

Aromatic Essentials

{ *Flavor Materials, Aromatic Chemicals*
Essential Oils, Perfume Specialties }

315 FOURTH AVENUE, NEW YORK

180 North Wacker Drive, Chicago 438 W. 48th Street, Los Angeles 42 Wellington Street, E., Toronto

Factory, Elizabeth, N. J.

New Penetrating Oil

Dr. D. Jayne & Son, Inc., Philadelphia, has announced a new product said to act as an antiseptic and, in conjunction with oils, to have a synergistic action, enabling the oil to penetrate the human skin. Officers of the company are president, *Joseph D. McIntyre; treasurer, David* Jayne Bullock; secretary, Edward S. *Bullock; chairman of the board, David W.* Jayne. Dr. L. Butz is in charge of the *company's research laboratories.*

McClintock Will Serve

E. I. McClintock, vice-president of the Bayer Co., Inc. has accepted the chairmanship of the Drugs and Pharmaceuticals Division of the Trade and Industry Committee of The Salvation Army United Appeal.

Huisking to Europe

Charles L. Huisking, president of Chas. L. Huisking & Co., New York, sailed on the S.S. "Manhattan", April 20, for an extended business trip abroad. He plans to visit the offices of Wheeler & Huisking, Ltd., London, and from there he will go to Norway to visit the Peter Devold Oil Co., which he represents in the United States.

Merck Dedication

Sir Henry Dale, Director of the National Institute for Medical Research of England and one of the world's leading authorities on pharmacology, has been selected as the principal speaker at the dedication of the new Merck Research Laboratory, to take place at Rahway, New Jersey, April 25.

Dr. Dale was knighted in 1932, made Commander of the British Empire (C. B. E.) in 1919, Fellow of the Royal Society in 1914; and in addition, is an M. A., M. D., and Fellow of the Royal College of Physicians.

In announcing this selection, George W. Merck, President of Merck & Co. Inc., stated that Dr. Dale will be welcomed by the following guests of honor, who have accepted invitations to be present on the occasion of the formal dedication:—Lammot du Pont, president of E. I. du Pont de Nemours & Co., Inc.; chairman of the board of General Motors, Inc., president of the Manufacturing Chemists' Association; J. K. Lilly, chairman of Eli Lilly & Co.; Surgeon General Hugh S. Cumming of the United States Public Health Service.

The State of New Jersey will be represented by Governor A. Harry Moore. Over three hundred leaders in medicine and chemistry of the country will be present at the dedication.

The Merck Research Laboratory, just completed at a cost of $200,000, is considered one of the most modern of its kind in the world.

McManus Grandson

Thomas Edward McManus, son of V. P. McManus, Jr., was born March 26. Thomas Edward is the first grandson of V. P. McManus of H. W. Henning & Son, New York.

Woodford Quits Mennen

R. H. Woodford, general sales manager, Mennen Co., Newark, N. J., has announced his resignation from that position.

Barbas Confers on Exposition

Raymond Barbas, vice-president, Patou, Inc., New York, has conferred with representatives of the French exposition committee on a proposed showing of French perfumes and cosmetics at the coming exposition in Chicago.

Twohey Joins Brosis

Brosis Laboratories, Chicago, has announced that Julia Twohey, formerly a toilet goods buyer, will have charge of the company's demonstration division of the sales department.

Tarsaidze Joins Matchabelli

Alexander Tarsaidze formerly buyer in the fine jewelry department of Saks-Fifth Avenue and R. H. Macy & Co. has joined the Prince Matchabelli Perfumery Co., Inc., as sales promotion and advertising manager. Prior to his connection with the above firms he was associated with the purchasing department of the American Relief Association with headquarters in Constantinople.

Trade Literature

ACTIVATED CARBON

Industrial Chemical Sales Co., Inc., New York, has issued a new revised edition of "Activated Carbon—The Modern Purifier," a 43-page booklet. The chapter dealing with pharmaceutical products discusses the application of activated carbon in processing inorganic chemicals, iodine and bromine, phosphoric and organic acids, gallic acid, glycerine, gelatine, drugs and pharmaceuticals, phenol, etc.

FRAMERICAN BOTTLES

Framerican Importing Co., New York, has published a new attractively-illustrated catalog of its perfume bottles and boxes, and face and dusting powder boxes. An unusual feature is the fact that actual samples of papers in which the boxes may be obtained are pasted under each illustration. Copies of this catalog containing the complete line of stock bottles and boxes may be obtained upon request.

A method for obtaining odorous substances from coal tar or vegetable oils which will take the place of genuine natural musk, was described by J. W. Hill and W. H. Corothers of E. I. du Pont de Nemours & Co., at the meeting of the American Chemical Society, March 28.

SANDALWOOD AS PERFUME

The Mysore Government has published a new attractive, 23-page booklet entitled, "Sandalwood Oil as a Perfume." Among other interesting features are suggested formulas for using the oil in perfume extracts, face powders and creams. Copies may be obtained from W. J. Bush & Co., Inc., New York, agents for Mysore Government sandalwood oil in the United States and Canada.

New Products

BORO-PHENO-FORM

Dr. Pierre Chemical Co., maker of "Boro-Pheno-Form" suppositories, is now marketing the same formula in ointment form, packaged in a tube.

CHARME COSMETICS

Gilliam Chemical Co., Lubbock, Tex., is marketing a new line of cosmetic unders the name, "Charme."

The Owens-Illinois building at the Century of Progress Exhibition. It is constructed of glass bricks recently introduced by the company.

S & G DePasquale

Messina, Italy

"Gold Anchor" Brand

Oil Lemon **Oil Orange**

Oil Bergamot

Oil Mandarin

Terpeneless Citrus Oils

The Finest Quality **The Right Prices**

"Ozone" Vanillin
(Made from Cloves)

Vanillin U. S. P.
(Made from Guaiacol)

"Ozone" Van-Ethylin

(Ethyl Protocatechuic Aldehyde)

A finer and better product than Vanillin—
three times stronger

Coumarin

(Domestic—Chemically Pure)

Oleoresin Vanilla
From Selected Bourbon Beans

Vanil X10X
(Pure Vanilla Extract 10 times Concentrated)

UNGERER & CO.

13-15 West 20th Street
NEW YORK

LEOPILLS

Leo Laboratories, Inc., Chicago, is marketing a new vegetable laxative under the name, "Leopills."

SUPERSET WAVE LOTION

Nestle-Le Mur Co., New York, has introduced a new six-ounce size of its "SuperSet Wave Lotion."

VIBRANT MASQUE

Ethel Barrymore, Inc., New York, is marketing a new "Vibrant Masque" cream under that name. Officers of the company are president, C. Hemmick; vice-president, George Gorda; secretary-treasurer, C. A. Jolley.

Removals

JOHN W. AYERS & SON

John W. Ayers & Son, tablet filling and counting machinery, has announced its removal to its new plant at Bloomfield, N. J. The new plant is a one-story brick building and the move was made necessary by expanding business since the introduction of the company's new improved models.

PHILIPP BROTHERS

Philipp Brothers, Inc., New York, has announced its removal to larger quarters at 70 Pine st., New York.

NATIONAL COLLAPSIBLE TUBE

National Collapsible Tube Co. announces the removal May 1 of its New York office to new and larger quarters at 341 Madison ave., New York. The telephone remains unchanged MUrray Hill 2-1626.

ROYAL DRUG MFG. CO.

Royal Drug Manufacturing Co., Duquesne, Pa., has acquired a new three story and basement plant at 2640 South Daerborn st., Chicago.

TH. GOLDSCHMIDT

Th. Goldschmidt Corp., will move May 1 to larger quarters on the ninth floor of 70 Pine st., New York, in order that enlarged facilities may better enable the company to take care of its rapidly increasing business.

INTERSTATE COLOR CO.

Interstate Color Co., Inc., New York, has announced that, beginning May 1, its offices will be located at 7 Beekman st., that city, at which address the company will have increased facilities to serve its rapidly increasing list of customers.

Agency Changes

American Druggists Syndicate and V. Vivaudou, Inc., Long Island City, to L. H. Hartman Co., New York.

Si-Nok Co., Indianapolis, to Central Advertising Corp., Indianapolis.

Eton Products, Inc., Newark, N. J., to Hommann, Tarcher & Sheldon, Inc., New York.

Financial

Drug Sales Analyzed

Because of the March banking holiday, drug sales during the initial three months of 1932 declined to a greater extent than previously had been anticipated, according to Standard Statistics Co., New York. Reports from manufacturers reveal that the credit stringency during this period caused many distributors to delay reorders, with the consequent restriction of dollar volumes. Hence, while January sales (latest complete returns available) were only 3% smaller than those of the similar 1932 month, invoice values for the full quarter are estimated at a level 15% below the total a year earlier.

The gradual return of more nearly normal banking facilities, however, is relieving the credit situation to the extent that drug demand is now reassuming previous proportions. Producers generally report a marked sales revival within recent weeks. Thus, much of the business lost in the first quarter will be credited to the current period, thereby minimizing the usual seasonal decline in second quarter volumes. Because of this development, it is likely that combined dollar sales for April and May will be no more than 5% to 10% smaller than those of the comparable 1932 interval.

For a lengthy period, sales of antiseptics, germicides and mouth washes occupied no more than a minor place in the volumes and profits of most drug and medicine producers. Within recent years, however, the increased demand on the part of the consuming public for preparations of this nature has elevated these products to a position where they now bulk large in the fortunes of many drug companies.

Because of this increased importance more recently attained, the growing number of new solutions on the market and the more intensive advertising on established preparations loom as significant in the determination of future profits for many of these units.

Some measure of the increasing efforts being expended to gain representation in this field is shown by the number of new antiseptics and germicides offered within recent years. The more important of these, together with those which have been on the market for many years, are listed as follows:

Company	*Product*	*Metropolitan Retail Price (cents per ounce)*
Drug, Inc.	Yick's Voratone	3.3
	MI 31	3.0
Kress & Owen	Glyco-Thymoline	6.5
Lambert	Listerine	5.6
Lavoris Co.	Lavoris	3.2
Lehn & Fink	Lysol	4.0
McKesson & Robbins	Antiseptic Sol. No. 59	3.0
Pepsodent Co.	Pepsodent	4.3
Sharp & Dohme	Hexylresorcinol S. T. 37	7.7
Squibb	DiPhen	9.0
Frederick Stearns	Astring-o-sol	11.0
R. L. Watkins Co.	Dr. Lyon's	3.0
Zonite	Zonite	4.4
	Forhan's	6.0

Note: Prices quoted are not strictly comparable in all instances, inasmuch as some antiseptics require dilution.

To these nationally known products must be added the numerous private brands now available in practically all chain and independent drug, as well as department stores.

New Drug, Inc. Directors

Drug, Inc., has elected the following new directors: George C. Haigh, vice-president of Bank of Manhattan Trust Co., New York; Eugene W. Stetson, vice-president of Guaranty Trust Co., New York; Charles S. Munson, president of U. S. Industrial Alcohol Co. and vice-president, of Air Reduction Co., New York; Col. J. Sumner Jones, Industrialist, Wheeling, W. Va. The new members were elected to fill the vacancies caused by the resignations of H. F. Behrens, H. H. Ramsay, H. G. Stifel and W. C. Watt.

Liggett Bankrupt

Louis K. Liggett Co., subsidiary of Drug Inc., filed a petition in voluntary bankruptcy, March 31, in the United States District Court for the Southern district of New York. The company operates 450 retail drug stores in thirty-five states. The bankruptcy order was signed by Judge John C. Knox after presentation by W. E. Watt, vice-president of the company. A statement issued by Louis K. Liggett said that the company's sales in 1932 were 30 per cent. below the 1929 volume and the company incurred heavy losses in the payment of high rentals to lease holders of the buildings in which many Liggett stores are located.

A merchandise creditors Committee has been organized consisting of the following members: chairman Thomas H. McInnerney, National Dairy Products Corp.; Bartlett Arkell, Beech-Nut Packing Corp.; Clifford M. Baker, Lamont, Corliss & Co.; J. L. Johnston, The Lambert Co.; George W. Merck, Merck & Co., Inc.; D. Emil Klein, D. Emil Klein Cigar Co.; Ralph H Aronson, Bourjois, Inc.; and F. Donald Coster, McKesson & Robbins, Inc.

Earnings and Dividends

AMERICAN HOME

American Home Products Corp. reports for two months ended Feb. 28: Net profit after all charges was $196,000. For the quarter ended March 31, 1932, net profit after taxes and charges was $886,091, equal to $1.45 a share on 611,000 no par capital shares then outstanding. On Feb. 28, last, cash was $1,857,000, current assets $6,335,000 and current liabilities, including two monthly dividends payable aggregating $170,000, were $1,265,000.

BOURJOIS, INC.

Bourjois, Inc., reports for 1932: Net income, after Federal taxes and other charges, $398,077, equivalent, after $2.75 no par preference dividend requirements,

Toilet Preparations Stand or Fall on the Quality of their **Basic Ingredients**

Neither secret formula nor manufacturing skill alone insure successful selling quality. The grade of basic materials you use, in the long run, makes or breaks your product. Over 40 years of highly successful experience with manufacturers and packers attests our ability to contribute the grade and variety of basic ingredient that will creditably take care of your product's quality.

Almond Meal	FACTOLAC	Talcum
Balsam Tolu	Gum Arabic	Irish Moss
Benzoin Gum	Gum Tragacanth	Lavender Flowers
Chalk (Precipitated)	Henna	Olibanum
Chinese Shavings	Henasoap Shampoo	Orris Root
Cuttle Fish Bone	Indian Gum (Karaya)	Powdered White Soap

QUINCE SEED OF THE HIGHEST OBTAINABLE QUALITY

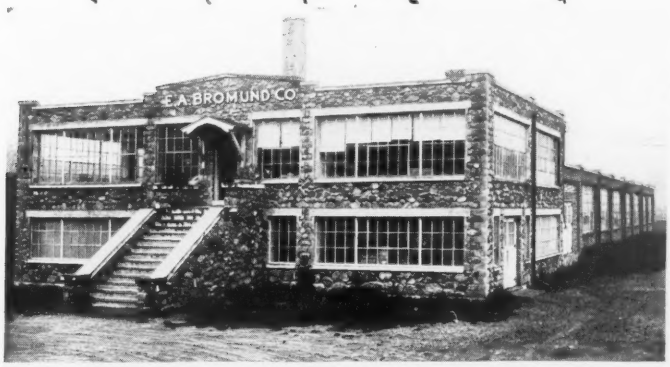
HOPKIN'S NEUTRAL WHITE SOAP—Powdered, Granulated. Contains NO Soap Bark, Free Alkali, Free Acid, heavy metals. Totally free of rosin, sugar and foreign matter.

FREE at your request: The Hopkins "BASIC INGREDIENTS" booklet. Useful, informative, valuable.

J. L. HOPKINS & CO.

Importers. Millers. Manufacturers
220 Broadway (at Fulton St.) N.Y.

SUN-BLEACHED SNOWFLAKE BEESWAX



Beeswax Bleacheries and Refineries in Morris County, New Jersey, and Westchester County, N. Y.

FRANK B. TRACY
201 N. Wells Bldg.
Chicago

C. L. IORNS
619 Clark Ave.
St. Louis, Mo.

MELVIN A. ISAACS & CO.
486 California St.
San Francisco, Cal.

E. A. BROMUND CO.

258 Broadway *(Est. 1880)* New York City

to 67 cents a share on 392,225 no par common shares, compared with $618,552, or $1.20 common share, in 1931.

CROWN CORK & SEAL

Crown Cork & Seal Co. reports for 1932: Loss from operations, $21,332, after interest, taxes, depreciation and other charges. Including loss from sale of portion of capital stock held in treasury, net loss was $50,099. In 1931, net profit, including seven months' operations of Detroit Gasket and Manufacturing Company and six months' operations of Western Stopper Company, Inc., was $698,707, equivalent, after $2.70 preferred dividend requirements, to 80 cents a share on 384,-122 no-par common shares.

HAZEL-ATLAS

Hazel-Atlass Glass Co. reports for 1932: Net profit after depreciation, depletion, Federal taxes, provision for contingencies, loss on sale of securities, interest and other charges, $1,922,784, equal to $4.42 a share on 434,474 $25 par capital shares, including stock in treasury. This compares with $2,190,333, or $5.73 a share in 1931. Balance sheet as of Dec. 31 shows that current assets, including $7,091,133 cash and marketable securities, after reserve, totaled $12,153,107 and current liabilities $2,696,448, compared with cash and marketable securities of $8,402,786, current assets of $11,254,378 and current liabilities of $1,550,546 at end of preceding year.

HEYDEN CHEM. CORP.

Heyden Chemical Corp. reports for 1932: Net profit, after depreciation, interest, Federal taxes and other charges, $203,600, equivalent, after 7 per cent. preferred dividend payments, to $1.21 a share on 150,000 $10 par common shares, compared with $243,227, or $1.47 a common share, in 1931. Current assets as of Dec. 31, including $252,164 cash and marketable securities, were $841,515 and current liabilities $164,895, compared with cash and marketable securities of $253,-815, current assets of $836,286 and current liabilities of $161,335 at the close of 1931.

LEHN & FINK

Lehn & Fink Products Co. reports for 1932: Earnings after depreciation, Federal taxes and other charges, $1,241,375, equal to $3.04 a share on stock outstanding after deducting shares purchased by the company. This compares with $1,451,163, or $3.59 a share, in 1931. Current assets on Jan. 1 were $2,096,376, compared with $1,654,285 the year previous, and current liabilities were $313,412, against $322,431; earned surplus at close of year amounted to $2,507,432, against $2,986,356.

McKESSON & ROBBINS

For the year ended December 31, 1932, McKesson & Robbins, Inc., and its subsidiaries, reported a combined loss of $921,641,62, after expenses, depreciation, interest, amortization and other charges, but before dividends and special reserves. After payment of $70,000 in dividends on preference stock held by the public there was an operating deficit of $1,889,263.19. The combined loss compared with combined profit from operations of $1,845,739.39, or 23 cents per common share, in 1931. Net sales for the year 1932 amounted to $104,227,131.31 as compared with $119,967,384.71 in 1931.

The consolidated balance sheet of the company and subsidiaries as of December 31, 1932, showed current assets totalling $47,526,650.85, including $2,739,093.87 cash, and current liabilities amounting to $7,402,020.48, which was a ratio of about 6½ to 1. This compared with current assets of $54,009,599.71, including $2,847,491.32 cash, and current liabilities of $10,724,421.22, or a current ratio of 5 to 1 at the end of 1931. Total assets at the end of 1932 amounted to $65,421,845.90, which compared with $79,957,216 as of the end of 1931.

The stockholders of the company at a special meeting December 9, 1932, authorized a change in the par value of the common stock from a no-par basis to a valuation of $5 per share. Through this action the company brought about a reduction in the book value of the outstanding common shares amounting to $10,825,550, which was credited to capital surplus. Prior to the revaluation, the common stock was valued at $15 a share on the company's books.

During the year, the company also readjusted the valuations of its fixed assets making total reductions of $5,033,-125.31 in the book value of these, which sum was charged to capital surplus. Depreciation rates have since been changed again, which will result in the future saving of $217,000 in annual depreciation charges, it was stated by F. Donald Coster, president. He also reported that savings of about $2,200,000 had been made during the year by reductions in salaries and wages and other economies. A reserve fund of $1,000,000 was set up against non-recurrent advances to customers, instalment notes and trade and miscellaneous investments, and there was also a provision made of $2,639,053 for doubtful notes and accounts. Mr. Coster also stated that $964,000 par value of the company's debentures were purchased and retired during the year 1932 and a further purchase of $575,000 in notes payable had been made since the beginning of this year.

ROSSVILLE ALCOHOL

Rossville Alcohol and Chemical Corp., reports for seven months ended Dec. 31 and American Solvents and Chemical Corporation, the predecessor company, for five months ended May 31, 1932: Loss after expenses, inventory write-down, provision for depreciation, interest and other charges, $128,231.

U. S. INDUSTRIAL ALCOHOL

Fixed assets of the U. S. Industrial Alcohol Co., which were carried in the balance sheet as of Dec. 31 last at a net valuation of $19,301,044, will be written down to $1 if stockholders at their meeting on April 20 approve a reduction in stated capital from $22,584,600 to $3,738,460, says the annual report for 1932.

For 1932, U. S. Industrial Alcohol reports net earnings of $176,104 after depreciation but before adjustment of inventory values. This contrasts with a net loss of $1,833,827 for 1931. The company has outstanding 373,846 capital shares. The sum of $1,500,000 was charged against surplus to cover the reduction of inventories to the lower of either cost or estimated market value during 1932.

The consolidated balance sheet as of Dec. 31 shows current assets of $8,085,550 and current liabilities of $1,194,900, compared with $9,384,399 and $659,842, respectively, at the end of 1931. Inventories, at the lower of cost or estimated market value, were $5,342,392, against $4,249,784 in 1931. A reserve for contingencies of $5,055,789 on the balance sheet for 1931, which had been created from earned surplus, was restored to earned surplus, in the last balance. A new reserve for contingencies of $1,750,000 was set up from surplus. Earned surplus at the close of the year amounted to $1,458,318, compared with $2,789,765 on Dec. 31, 1931, and $10,855,136 on Dec. 31, 1930.

ARMSTRONG CORK

Armstrong Cork Co. reports for 1932: Net loss after depreciation, interest, inventory adjustments, foreign subsidiary losses and other charges, $655,730, against $3,823,131 loss in 1931.

PHILIP CAREY

Philip Carey Manufacturing Co., Cincinnati, has announced the election of George A. Rentschler of Hamilton, O., to the board of directors. N. H. Craabs, J. P. Stagg and Frank W. Cottle, have resigned from the board. The company reports for the year ended December 31, 1932, a net loss of $355,854 after depreciation, depletion and taxes, comparing with a net profit of $300,505 in the previous year.

Joins First Machy. Co.

Mike Firstenberg, former New York University football luminary and assistant football coach, has become connected with the First Machinery Corp., New York, as head of the company's new machinery division.

Odorless!

Cocoa Butter

U. S. P.

This Super Cocoa Butter, U. S. P., is absolutely odorless and will not get rancid. Its use permits of a better odor in the finished product with the saving of fully 25 per cent. on perfuming costs. Thus it is particularly valuable in lipsticks, rouges, shaving creams and face creams.

Packed in cases holding 110½ lbs. Smallest amount available is a cake weighing approximately 25 lbs.

Alumnol, for deodorants
Cetyl Alcohol
Cosmetic Colors
Gum Paragon, for finger wave compounds
Lanolin, Premium Anhydrous U.S.P. nearly odorless
Methyl-para-oxybenzoate, preservative and antiseptic
Oleic Acid, extra pure
Ozokerite, genuine 100% Boryslaw
Sesame Oil, refined, odorless
Stearic Acid, cosmetic grades
Soluble Olive Oil for shampoos, emulsions
Titanium Dioxide, pure, for face powder, etc.
Zinc Oxide, U.S.P.

All Cosmetic Chemicals

R. F. REVSON CO.
110 W. 40 Street New York
Specializing in
Chemicals for the Cosmetic Industry

"Union Bulgare" OTTO of ROSE

A strictly pure Rose, produced in the distilleries of the Union Générale des Coopératives Bulgares and guaranteed by the Bulgarian Government.

●

Offered in original sealed containers only, direct to the consumer by:

Sole Agents for the U. S.
W. J. BUSH & CO., Inc.
New York Chicago National City, Cal.
Sole Agents for Canada
W. J. BUSH & CO., (Canada) Limited

U. S. P.

ZINC OXIDE

. . . . . by the pioneer manufacturer of zinc products . . . . . .

THE NEW JERSEY ZINC COMPANY
160 FRONT STREET, NEW YORK
Chicago Cleveland San Francisco

MYSORE GOVERNMENT Sandalwood ~~ Oil ~~

Distilled from
Santalum Album

{ INSIST ON ORIGINAL CANS AND CASES }

Agents for the United States and Canada

W. J. BUSH & CO.
(Incorporated)
Essential Oils
New York
Chicago National City, Calif. Montreal

Willstaetter—Medalist

Dr. Richard Willstaetter of Munich, Nobel Prize winner in 1915 for his outstanding contributions in organic chemistry, has been selected to receive the Willard Gibbs Medal for 1933, one of the highest American honors in chemistry, it was announced here yesterday by the American Chemical Society.

The medal will be presented to Dr. Willstaetter in Chicago, Sept. 13, during the eighty-sixth meeting of the society, to be held in connection with the Century of Progress Exposition.

One of the outstanding achievements of Dr. Willstaetter is his investigation on the structure of chlorophyll, the green coloring matter present in all growing plants. He proved the identity of chlorophyll from many plants and demonstrated the existence of two chlorophylls and their close association with the carotinoids, a widely distributed plant pigment.

Dr. Willstaetter also revolutionized research in the field of enzymes, chemical compounds of vegetable or animal origin that cause chemical transformations. His work with cocaine alkaloids made possible the commercial synthesis of local anesthetics. He is one of the codiscoverers of the new anesthetic avertin. His experiments with the carotinoids have made possible the separation of the individual components of this group and their relation to vitamin A, while his researches on the enzymes, according to the announcement, "lifted the veil that obscured the complex processes of protein hydrolysis."

New Bottle Caps

Hermeticum, Ltd., of Lwow, Poland, is offering a new line of gelatine bottle caps. These caps may be secured in three finishes—transparent, opaque and metallic—and in from 40 to 50 colors and assorted sizes. These caps come packed in boxes in 10,000 lots. Application is said to be very simple, consisting merely of soaking the caps in water, slipping them over the neck of the bottle and allowing them two hours to dry after which period a hermetic seal is formed. The Adrian Herbert Co., New York, is exclusive agent for these caps in this country.

Powell and Fink Return

John Powell, president of John Powell & Co., New York, returned April 20 from a trip through Western Canada and California. Mr. Powell's trip, which he reports was highly successful in a business way, covered a period of three weeks.

J. H. A. Fink, export manager of John Powell & Co., returned April 14 from a three month trip through Mexico and South America.

Quinine in Bengal

At the end of March 1932, reserves of quinine in Bengal amounted to 108,815 pounds and 1,351,194 pounds of dry bark was awaiting processing. The total area of cinchona under cultivation in fiscal 1931-1932 was 2,789 acres, an increase of 194 acres as compared with the preceding year. Production of bark on Bengal's plantations equaled 1,179,472 pounds, a reduction of 296,582 pounds from last year. About 43,500 pounds of quinine sulphate and 13,000 pounds of cinchona febrefuge were made from cinchona bark grown in Bengal. (Assistant Trade Commissioner Paul L. Hopper, Calcutta.)

Obituaries

John F. Queeny

John Francis Queeny, founder and chairman of the board of the Monsanto Chemical Works, St. Louis, died of a complication of diseases March 19 at his home in St. Louis after an illness of several months. He was born in Chicago and was seventy-four years old, being a son of John Queeny and Sarah Flaherty Queeny. On March 22 last year he observed his sixtieth year in the drug and chemical industry, when he was the guest of honor at a testimonial dinner.

Over sixty years ago, in 1872, he started as an office boy for the drug firm of Tolman & King, Chicago. After eleven years with the drug firm and its successor, he became city salesman at $18 weekly. He later went from Chicago to New Orleans as purchasing agent for I. L. Lyons & Co., wholesale druggists, and after ten years went to New York, as sales manager of Merck & Co.

In 1896 he went to St. Louis in the employ of Meyer Brothers Drug Co. He became interested in the sulfur industry, conceived an idea that St. Louis should be the center for refining of sulfur, and three years after his arrival in the city invested his savings of $6,000 in a sulfur refining plant in East St. Louis, but the plant was destroyed by fire not long after he started operations. However, by 1901 he had saved up $1,500 and decided to enter the chemical manufacturing industry, starting with the production of saccharin, which at that time was produced solely in Germany.

Throughout his initial business ventures he remained in the employ of Meyer Brothers Drug Co., and it was ten years before he saw the foundations of his chemical manufacturing activities firmly established as the nucleus of the Monsanto Chemical Works.

He was president of the company from its founding until 1928 and chairman of the board of directors from 1920 until his death, relinquishing the duties of president in 1928 to his son, Edgar M. Queeny. In addition to his duties with the chemical company he was a director of the Lafayette-South Side Bank, the Mercantile Trust Company and the Missouri Institute for the Blind. He was a member of the executive committee of the Mississippi Valley Association, devoted to inland waterways activities, and was a member of many local organizations and civic bodies. He held membership in the St. Louis Drug Club, American Electrochemical Society, Society of the Chemical Industry, Royal Society for the Encouragement of Arts, Manufactures and Commerce, of London, the Elks, and the Masonic fraternity.

Carl H. White

Despondency over the death of his wife was regarded as the cause of suicide, March 20, of Carl H. White, fifty-two, organizer and founder of Health Products Corp., Newark, N. J. While he held the honorary position of chairman of the Board of Directors, he had taken no active part in the affairs of the corporation since its early days.

He was a member of former President Hoover's Emergency Unemployment Commission, and before founding Health Products was a well-known New York advertising man, a member of the firm of Joseph Richards & Staff. He was known widely through the Oranges and Bennington, Vermont, his summer home, for his many charities and benefactions. He leaves a son, Carl H. White, Jr., age four.

D. S. Chamberlain

D. S. Chamberlain, president, Chamberlain Laboratories, Inc., and of the Chamberlain-Gray Drug Company, Des Moines, Ia., and a former president of the Proprietary Association, died March 14, aged 84, at his home in Des Moines, after an illness of six weeks. He was born near the pioneer settlement of La Fayette in Linn county, Iowa, on June 25, 1848.

He went to Des Moines in 1881 and, with some relatives, organized a partnership designated as Chamberlain & Co., engaging in proprietary medicine distribution. In 1892 the firm was incorporated and the name was changed to the Chamberlain Medicine Co. Under his guidance as president the business of the company expanded into Canada, Australia and South Africa. In 1930, the medicine company was disposed of and the Chamberlain Laboratories, specializing in the manufacture of cosmetics, was formed. He continued in active charge of the business until his recent illness, when his son, Dr. L. H. Chamberlain, who was associated with him, assumed charge.

He was a Mason and a member of a number of civic, social and scientific associations. He served as president of the Proprietary Association in 1903-1904. In 1903 he built the Hotel Chamberlain in Des Moines, which was reputed to be the first fireproof hotel in Iowa.

Raw Material Markets

Chemicals
Drugs
Essential Oils
Medicinal Oils
Natural Products
Flavors

Spot Menthol Weakens

The Menthol market is in rather a peculiar position in that the source of supply continues very firm under the stimulus of its statistical position, whereas the spot market has weakened. Locally this item is selling at from $2.90 per pound in cases to $3.10 per pound for lesser quantities. This represents a decline of 10c per pound from previous quotations.

The spot market is being governed almost entirely by the demand which has been insufficient to support prices. Not long back rather heavy shipments were received here and from time to time these have been augmented by additional arrivals so that stocks seem to be more than sufficient for current requirements.

Some sellers, however, still maintain belief in what they term the strong statistical position of the market.

The production of peppermint oil in Hokkaido has been estimated at 676,000 pounds, which was about 50 per cent. below normal owing largely to rainy weather. The Honshu crop was also considerably below previous estimates and it is stated unofficially that the crop totaled about 130,000 pounds.

Exports of menthol crystals from Japan during the calendar year 1932 amounted to 558,000 pounds, a gain of 15 per cent., or 75,000 pounds, when compared with similar exports during 1931, which amounted to 483,000 pounds. Increased exports to France, the United States, and Germany accounted for this gain. Exports to British India decreased from 55,000 pounds in 1931 to 52,000 pounds in 1932, while exports to the Straits Settlements and "Other Countries" showed decreases as well.

Exports to the United States increased from 248,000 pounds in 1931 to 296,000 pounds in 1932, a gain of approximately 20 per cent., or 48,000 pounds, while exports to France increased from 23,000 pounds in 1931 to 81,000 pounds in 1932.

The Japanese menthol and peppermint oil trade during 1932 was, in conjunction with all other commodities, affected by the more or less steady depreciation of the yen which, together with the crop shortage, were the dominant features of the trade during the year. (Consul Howard Donovan, Kobe).

Price Trends Mixed

While March and the first part of April showed a decrease in business due directly to the curtailment of funds resulting from the bank holiday and the failure of many banks to reopen immediately, our index of prices covering fifty commodities (*see page 307*) used in the industry rose—although imperceptibly—from 54.9 in March, to 55.0 in April.

This rise was brought about by advances in two of the four groups included in the composite index; the index of medicinal chemicals (*see page 352*) rose from 60.2 in March, to 60.5 in April, prices of cod liver oil and mercury advancing, and menthol and bismuth declining. The index for botanical drugs rose 1.3 units in April to a level of 68.7, increases being registered in aloes, digitalis, and gentian, while buchu registered a decline.

The index for essential oils declined from 39.8 in March, to 39.0 in April, bergamot, bois de rose, citronella, clove, and sandalwood prices falling, while cassia and peppermint prices advanced.

The cosmetic raw material index declined in April to 59.7. Almond meal, beeswax, candelilla, Japan wax, menthol, petrolatum, quince seed, spermaceti, declined in price, and there were no advances.

Mineral Oil Firm

Imported mineral oil is firm in the spot market, being a reflection of the situation abroad. European refiners are said to have advanced prices and the tendency here is toward a definitely stronger position. Russian oil of guaranteed quality therefore, continues to command full prices.

Tartaric Acid Steady

Demand for tartaric acid has been conservative during the past month. Leading manufacturing consumers have been in the market for moderate quantities only. Official price is 20c per pound.

Acetanilide Firm

Prices for acetanilide were firm at from 26c to 28c per pound during the previous trading period although trade was somewhat quiet and quantities required conservative in size. The stability in price was in keeping with stabilized cost to produce this item.

Mercury Up Again

With stocks of mercury practically nonexistent in the spot market, prices have again been advanced to the basis of from $51.50 to $56.00 per flask. Although demand from manufacturing consumers is light and irregular, the continued small production has resulted in depletion of stocks held in reserve by both producers and dealers.

Recently 700 flasks of mercury were imported but this was for a special account and not for resale here so that it will not disturb this market.

Thymol Strong

Because of higher prices quoted for shipment, a firmer undertone has developed in thymol. Prices ranged from $1.15 to $1.40 per pound as to quantity and seller.

Mercurial Prices Firm

Mercurial prices were very firm on spot during the past month, reflecting the higher replacement costs of raw material. The increased cost of raw material, however, has not as yet been reflected in higher prices for the salts but should the trend continue some revision is likely to be made.

Agar Dull

Demand for agar continued slow. Prices remain unchanged but unsettlement prevailed and spot market was subject to shading. Stocks were plentiful and in competition with small movement. Current price No. 1 40c to 43c per pound, No. 2 35c to 38c per pound as to quantity.

Borax Unchanged

Borax prices are steady and generally considered on the low side. Price of 4½c per pound was being asked for U. S. P. crystals in barrels. Movement into consumption has yet to show a pronounced gain but a better attitude prevails as regards the future sale of this item.

Santonin In Demand

A seasonal improvement in santonine is reported in some quarters. Prices are steady at from $60 to $65 per pound.

Citric Acid Quiet

While movement of citric acid into consumption is moderate, signs of renewal of more active trade are not lacking. In view of low prices and the approach of the heavy consuming season, manufacturers are inclined to be quite optimistic. Prices appeared steady and without new feature.

The Italian citric acid cartel "Cifac" has been dissolved, according to information reaching the British chemical trade. In place of the former Consorzic Italiano Fabbriche Acido Citrico, says the *Chemical Trade Journal*, a new company has been formed under the name of Compagnia Italiana Fabbriche Acido Citrico, apparently only a reorganization, as the head office is the same as that of the old company. The new company has been capitalized at 300,000 lire.

In November and December of last year deliveries of calcium citrate by producers to the Camera Agrumaria were only 15.4 tons, with 328 tons sold during the period. Stocks were 8,246 tons at the beginning of October and have consequently decreased somewhat. The selling price for calcium citrate at present is one lire per kilog, while producers are paid 1.5 lire, the difference being made up by the Camera from the funds that have been earmarked for the purpose.

Italian exports of citric and tartaric products show a decline, says Elizabeth *Humes, Rome. Exports of citrate of lime* in 1932 dropped 54 per cent. under 1931, *citric acid 13 per cent., tartaric acid 24* per cent., and cream of tartar 31 per cent., as shown by the following trade statistics:

	1931 *Quintals*	*1932* *Quintals*
Citrate of Lime	14,260	6,602
Citric acid	18,167	15,816
Argols	86,964	82,044
	1931 *Quintals*	*1932* *Quintals*
Wine lees	10,148	9,603
Tartaric acid	23,715	18,126
Cream tartar	10,531	6,917

Sodium Citrate Lower

In view of the quiet demand, leading producers of sodium citrate have reduced prices. U. S. P. 8th Rev. is 1½c per pound less and U. S. P. 10th Rev. 2c per pound less. The new schedule follows:

Sodium Citrate, U.S.P. 8th Rev., Granular
- Barrels, net each 225 lbs. ..... 24c per lb.
- Kegs, " " 100 lbs. ..... 25c " "
- 50 lb. can ..... 26c " "
- *25 lb. can ..... 29c " "

*50 lb. lots, 1c per lb. less
Usual advance for smaller sizes

Sodium Citrate, U.S.P., 10th Rev., Granular
- Barrels, net each 250 lbs ..... 30½c per lb.
- Kegs, " " 100 lbs ..... 31½c " "
- 50 lb. can ..... 32½c " "
- *25 lb. can ..... 35½c " "

*50 lb. lots, 1c per lb. less
Usual advance for smaller sizes

Sodium Citrate, U.S.P., 10th Rev., Powder
½c per lb. advance over Granular

Spermaceti Lower

Spot market for spermaceti was somewhat lower. Cakes in cases generally sold at from 18c to 20c per pound.

Cod Liver Oil Strengthens

Norwegian cod liver oil is higher in the spot market at from $19.00 to $20.00 per barrel. The market is considered strong at these levels as demand has expanded and replacements costs continue the trend recently established.

Production is said to compare favorably with that of the previous year although more boats are engaged in Norwegian waters than ever before.

Newfoundland oil is selling at from $21.00 to $22.00 per barrel.

Cod Liver Oil exports from Newfoundland declined from 2,958 Imperial gallons for the period January 1 to March 16, 1932, to 2,272 gallons for the corresponding period of 1933.

Glycerin Firm

No unusual activity is noted in glycerin. Refiners are adhering to former prices, however, in view of a somewhat firmer crude material market. C. P. material is 10¼c per pound. Total volume of business being done is said to be rather disappointing.

Canadian imports of glycerin showed an abrupt drop from 3,874,735 pounds, *($287,454) in 1931 to only 315,657 pounds,* ($23,502) in 1932. The United Kingdom's *share dropped from 683,250 pounds to* 79,309 pounds, while that of the United *States increased from 37,939 pounds to* 10,712 pounds in 1931 and 1932, *respectively.*

Cinchona Salts Down

Prominent sellers of cinchonidine sulfate have adjusted their prices in conformity with the generally lower production costs resulting from lower raw material prices. Official quotations are 28c to 31c per ounce as to quantity taken.

Due to lower raw material prices, leading producers of cinchonine alkaloid and sulfate have reduced prices on these items. Current official quotations for alkaloid are 30c per ounce and sulfate 20c per ounce.

Bismuth Subnitrate Cut

Bismuth subnitrate during the past month has experienced rather a sharp decline. Leading producers are now quoting in 25 pound lots at 95c per pound and in lesser quantities at $1.00 per pound. The competitive factor is said to have been responsible for the reaction.

Producers of quinidine readjusted prices to a lower position in keeping with the general downward revision in raw material. Alkaloid is now offered at from 57c to 66c per ounce and the sulfate at 40c per ounce.

Alcohol at Low Point

Business in denatured alcohol is in line with volume usually to be expected at this time of year. Talk of blending alcohol with gasoline would create a demand for the material at a time when consumption is usually at its lowest point.

Stocks unsold in hands of producers and jobbers is said to be of fair size but as far as the price situation is concerned there is no indication of unsettlement. The second quarterly price schedules recently announced are basically unchanged from the prices that prevailed during the previous quarter.

Quotations for denatured alcohol to be delivered during the period April 1 to June 30, 1933 are as follows:

	Carloads drums	*Single drum price*
No. 1 spec	.335	.415
No. 5 comp	.385	.465
23 A, spec	.37	.49
39 B, spec	.38	.50
40 M, spec	.34	.46

Prices quoted here are f.o.b. works.

Potassium Iodide Lower

Owing to competition, a reduction of 15c per pound has been announced by leading *sellers of potassium iodide. The new* schedule is quoted below:

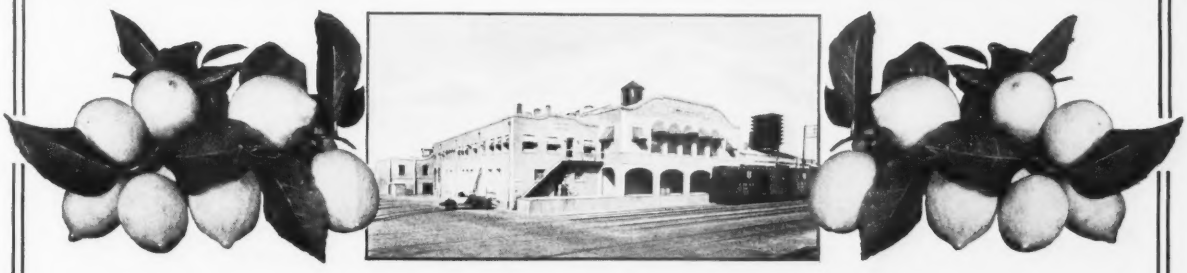
Potassium Iodide 25 lbs. (one delivery $2.00 per lb.
Lesser Quantity ..... 2.05 " "

Camphor Moves Lower

Due to an inactive demand prices on *camphor have been revised and show con*cessions from previous levels. Japanese *refined slabs are now offered at from 38c* to 39c per pound, refined powder at 39c *to 40c per pound and ½ oz. tablets at* from 45c to 46c per pound as to quantity. *Stocks are ample with the exception of* powder which is said to present for this *reason a firmer aspect than the other* grades.

The Italian synthetic camphor output during 1932 was estimated at about 600 tons, as compared with approximately the same amount in 1931 and 345 tons in 1930. About 50 per cent. of the production is generally exported. The United States took 193 tons in the first 10 months of 1932. The synthetic camphor industry was first established in Italy in 1925, there being only one producer having a stated capacity at present of 1,600 tons annually. (Elizabeth Humes, Rome).

It is stated unofficially that a contract has been concluded recently by the "Alsacienne de Produits Chimiques" with the "Camphre Francais et ses Derives" by which the Alsacienne would rent that part of the La Rochelle factory belonging to the Camphre Francais which is equipped for the production of synthetic camphor by a special process recently perfected and improved. (Assistant trade Commissioner Earl C. Taylor, Paris).



Exchange BRAND

CITRIC ACID U·S·P

(Crystals · Granular · Powdered)

Is Made from American Lemons

by the Exchange Lemon Products Company of Corona, California. Backed by the Sunkist group of 13,200 citrus growers—largest in the world. Immediate shipments from warehouse stocks in New York, Chicago, Philadelphia and St. Louis. For prices on kegs, barrels or carloads, consult any of the following distributors:

DISTRIBUTED EAST OF THE ROCKIES BY

Mallinckrodt CHEMICAL WORKS
St. Louis Philadelphia
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J. T. BAKER CHEMICAL COMPANY
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New Jersey

DODGE & OLCOTT COMPANY,
180 Varick Street,
New York City

NEW YORK QUININE & CHEMICAL WORKS
101 North 11th Street
Brooklyn, New York

SWANN CHEMICAL COMPANY, Birmingham, Alabama

THE HARSHAW CHEMICAL COMPANY, Cleveland, Ohio

PACIFIC COAST SERVED BY

Products Department - CALIFORNIA FRUIT GROWERS EXCHANGE, Ontario, California

Citronella Trade Quiet

Trade in citronella is quiet for this season of the year. Prices on Ceylon oil continue unchanged but Java oil is a little easier on spot. Dealers are quoting in drums at 45c to 50c and in tins at from 47c to 53c per pound.

Citronella oil was exported from Ceylon in 1932 to the extent of 1,279,800 ounces compared with 1,203,500 in 1931.

Calamus Oil Firm

Oil calamus was firm on spot and unchanged from previous levels which ranged from $2.75 to $3.00 per pound. Call was not active but dealers took firm view of the market.

Cardamom Oil Dull

Demand for oil cardamom was characterized as occasional and below normal. Prices were shaded to from $14 to $15 per pound.

Lime Oil Remains Firm

Lime oil was one of the firm spots in the essential oil market. Although there are no open price changes holders of distilled oil are indisposed to quote other than scheduled prices which ranged from $4.75 to $7.25 per pound as to quantity, quality and seller. A fair current demand is noted. Expressed oil was also lacking in conditions likely to be productive of competition.

Cade Oil Steady

Business done in cade oil were for limited amounts but prices retained a firm undertone at from 24c to 26c per pound. Supplies on spot are not large but said to be ample for current needs.

Lemon Oil Quiet

Movement in lemon oil was conservative. Although the market continued competitive there were no open changes in quotations during the past month.

New production of citrus oils in Italy was reported as small, sales having been limited. Current reports confirm previous estimates that orange oil production is considerably below that of last year. New production of bergamot is placed at 190,000 kilos against 90,000 in the preceding season. Return to unrestricted trade strengthened slightly the market position of the oil, the price for which remained fairly constant at 11 lire per Sicilian pound during February.

Clove Oil Down Sharply

All the recent strength that accompanied higher prices for clove oil seems to have disappeared from the spot market. Competitive conditions have again become quite noticeable and prices showed rather a sharp decline. The price in cans ranged from 75c to 80c per pound, thereby placing the commodity at about the same level as preceeded the rise last month.

Spanish Oil Exports Up

Through the port of Seville, Spain were exported greater quantities of oils of rosemary, origanum, spike, and pennyroyal destined for the United States in 1932 as compared with 1931, although values were lower, as may be observed in the following official statistics of exports to the United States:

Oils	*1931*		*1932*	
	Pounds	*Value*	*Pounds*	*Value*
Rosemary	7,800	$2,600	9,100	$2,400
Origanum	5,600	8,500	6,800	5,300
Spike	8,200	4,300	8,800	3,400
Pennyroyal	2,700	1,800	2,800	1,600

Eucalyptus Oil Quiet

Eucalyptus oil continues without price feature. Business was generally done during the past month on the basis of previously quoted schedules. Oil in drums is available at from 20c to 21c per pound.

Assistant Trade Commissioner DuWayne G. Clark, Johannesburg reports that the development of a eucalyptus oil industry in South Africa is held in prospect as the result of certain experiments and investigations recently carried out by the Government's Department of Agriculture. The several species of eucalyptus occurring throughout the Union have been examined to determine the yield and quality of oil as compared with the Australian species which indicated that a good yield of excellent quantity oil could be produced from South African eucalyptus. The condition of world markets for eucalyptus oil, however, would not appear conducive to immediate exploitation.

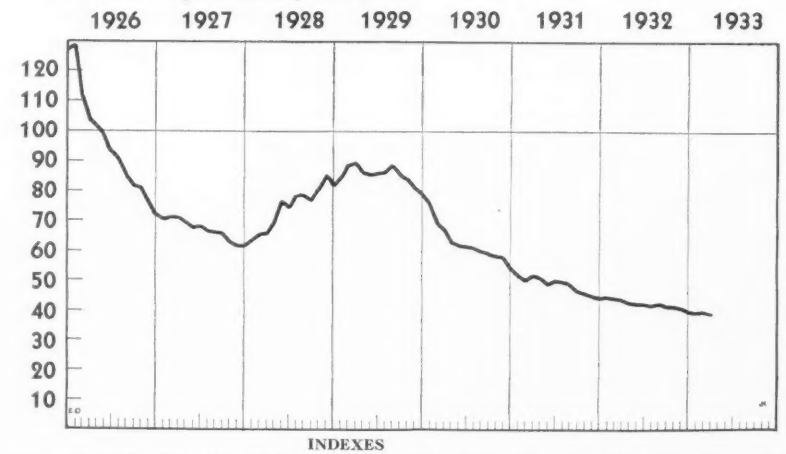
Geranium Oil Steady

Geranium oil is without feature other than that the Turkish oil showed a slightly easier tendency. Algerian and Bourbon oils, however, were steady with consumption holding at its recently moderate volume. Replacement costs acted as a support to spot quotations.

Consul General Oscar S. Heizer, Algeris reports that buyers of Algerian geranium oil may now receive from the Algerian Government an assurance as to the purity of the oil as a result of the purchase by the government of apparatus to detect adulteration.

15 ESSENTIAL OILS — WEIGHTED INDEX

1925 Average Prices Equal 100



	1925 Consumption
Anise	182,600 lbs.
Bergamot	118,800 lbs.
Bois de Rose	69,300 lbs.
Cananga	25,300 lbs.
Cassia	328,900 lbs.
Citronella	1,315,100 lbs.
Cloves	300,000 lbs.
Eucalpytus	191,400 lbs.
Geranium	203,300 lbs.
Lavender	192,000 lbs.
Lemon	650,000 lbs.
Limes	40,500 lbs.
Peppermint	250,000 lbs.
Rose	56,830 oz.
Sandalwood	75,000 lbs.

INDEXES

	1926	1927	1928	1929	1930	1931	1932	1933		1926	1927	1928	1929	1930	1931	1932	1933
Jan.	127.3	72.0	62.0	82.1	78.9	54.8	43.7	39.9	July	92.3	68.0	74.4	86.0	61.8	50.1	42.3	
Feb.	129.2	70.4	64.1	84.8	76.3	52.1	44.2	39.1	Aug.	89.9	66.5	78.8	86.3	61.5	49.6	42.0	
Mar.	111.8	71.4	65.8	88.1	69.0	50.3	44.0	39.8	Sept.	85.1	66.1	78.4	88.8	60.0	47.9	42.3	
Apr.	104.0	70.9	65.6	89.3	66.9	52.0	43.6	39.0	Oct.	81.7	66.0	77.0	85.5	59.7	46.1	41.8	
May	101.9	69.4	69.1	86.2	62.9	50.7	42.7		Nov.	80.9	62.9	81.0	83.9	58.3	45.2	41.6	
June	98.3	67.4	76.9	85.5	62.0	48.6	42.2		Dec.	76.6	62.1	85.1	80.8	58.0	44.6	41.0	

HEYDEN
FINE CHEMICALS

SALICYLATES

Acid Salicylic — Sodium Salicylate

Acetyl Salicylic Acid

Methyl Salicylate — Minor Salicylates

CREOSOTE

CREOSOTE CARBONATE

GUAIACOL

Formaldehyde
Para Formaldehyde
Hexamethylenetetramine
Benzoate Soda
Benzoic Acid
Benzaldehyde

Benzyl Chloride
Bromides
Silver Salts
Calcium Guaiacol Sulphonate
Potassium Guaiacol Sulphonate
Glycerophosphates

HEYDEN CHEMICAL CORPORATION
50 UNION SQUARE NEW YORK

180 North Wacker Drive Chicago, Ill.

Factories:

Garfield, N. J. Perth Amboy, N. J.

Rose Crop Greater

The 1932 rose crop of Bulgaria amounted to 7,623,000 kilos as compared with 6,830,000 kilos in 1931, and rose oil production to 1,891 kilos as compared with 1,775 kilos in 1931. The annual production of rose oil in Bulgaria usually averages between 2,500 and 3,500 kilos. Owing to the situation of the world market, prices already low in 1931, progressively declined during 1932, averaging from $216 to $288 per kilo. The Agricultural Bank of Bulgaria was empowered in May 1932 or organize the distillation of oil on a cooperative basis, with corresponding advances to rose producers. In this way, about three-fourths of the 1932 production or 1,235 kilos was distilled under the control of the bank for marketing. (Consul John McArdle, Sofia).

Peppermint Oil Firm

The peppermint oil market continues to hold previous gains and to present a very firm undertone at existing levels. Local dealers stated that primary market factors showed reserve in offering material being content to await further developments in the situation. One factor expressed the opinion that the possibility of Government support has gone a long way to creating this attitude.

Movement into consumption was moderate to fair during the past month.

A recent Department of Commerce bulletin states that the export trade is becoming increasingly significant to American peppermint producers, oil distilleries and dealers as evidenced by the steady increase in sales of peppermint oil to foreign countries—despite a marked decline in United States production of this farm product.

United States exports of peppermint oil increased from 176,718 pounds in 1928 to 262,210 pounds in 1932, a total gain of 48 per cent. during the five year period, whereas production of peppermint oil in the five leading mint states (Indiana, Michigan, Ohio, Oregon and Washington) declined from 1,073,000 pounds in 1929 to 411,000 pounds in 1932. Furthermore, although the unit value of export shipments have declined somewhat, comparable with the trend in domestic prices, the total value of exports in 1932, amounting to $455,017, represented a gain over 1931.

The following table shows comparative details of production and trade during the past five years:

Year	Production Peppermint Oil (5 States) pounds	Exports pounds	Per cent. of oil exported (1)
1928	.....	176,718	....
1929	1,073,000	221,561	20.6
1930	1,103,000	233,294	21.1
1931	683,000	229,537	33.6
1932	411,000	262,210	63.8

Year	Farm value of oil produced Dollars	Total value Exports Dollars
1928	.....	$604,320
1929	$3,418,000	795,464
1930	2,124,000	700,177
1931	810,000	438,202
1932	567,000	455,017

(1) This comparison of production and exports is a fair index, despite the fact that (a) Production figures employed cover only commercial acreage and oil from five states, but these states account for the bulk of domestic output; (b) No recognition of stocks in hands of distillers or dealers is made, since no statistics are available.

Spearmint Oil Stronger

Spearmint oil is reported to be showing increased firmness and spot dealers were adverse to making any price concessions. Holders seem content to await better consumer demand and maintain quotations in the meantime. U. S. P. oil was 90c to $1.10 per pound.

Bitter Almond Lower

Bitter almond oil was lower at from $2.00 to $2.10 per pound. Bois de Rose Brazillian was down to from 90c to $1.05 per pound. Ginger was off to from $3.00 to $3.25 per pound. Hemlock was offered at 75c to 90c. Artificial sassafras was up to 18c and 20c and safrol advanced to from 24c to 26c per pound.

Oil Wormseed Firmer

Due to the fact that previous price reductions had brought the value of oil wormseed close to replacement costs, the spot market showed more strength than has been displayed in this item for some time. No open price changes, however, were made during the past month quotations ranging from $1.85 to $2.15 per pound. There was little improvement in call from manufacturing consumers.

Balsams Firmer

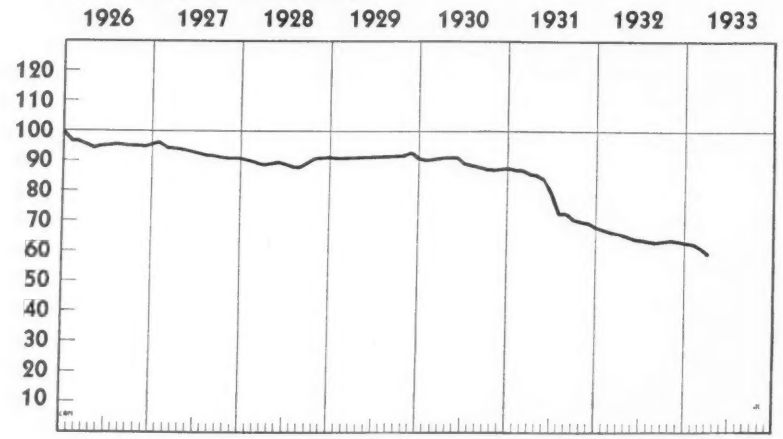
While the balsams have not experienced open price changes, the market as a whole is firmer. Most of the business was booked at sellers views during the past month, this applying particularly to Copaiba. Replacement buyers found the primary market firm in their price views.

Balsam tolu was imported in greater quantity in 1932 as was storax, although the total 1932 trade in balsams was lower. Balsam imports are indicated in the following table:

	1931		1932	
	Pounds	Value	Pounds	Value
Balsam tolu	39,122	$20,165	46,593	$17,659
Balsam copaiba	176,067	18,344	118,071	7,944
Balsam peru	63,541	64,842	57,283	38,700
Storax	12,696	2,576	19,121	3,000
Fir or Canada balsam	8,817	6,422	4,894	2,400

25 COSMETIC RAW MATERIALS — UNWEIGHTED INDEX

1925 Average Prices Equal 100



Alcohol
Almond Meal
Arabic Gum
B. Coparba
B. Peru
B. Tolu
Beeswax
Borax
Candelilla Wax
Cresin Wax
Glycerin
Japan Wax
Lanolin
Menthol
Mineral Oil
Paraffin
Petrolatum
Ppt. Chalk
Quince Seed
Rice Starch
Spermaceti
Stearic Acid
Talc
Tragacanth
Zinc Oxide

INDEXES

	1926	1927	1928	1929	1930	1931	1932	1933
Jan.	99.5	95.8	90.7	91.2	91.0	88.4	67.9	63.4
Feb.	96.8	96.1	90.0	90.5	90.2	87.6	67.4	63.0
Mar.	96.6	94.3	88.9	90.7	90.6	87.7	66.6	61.3
Apr.	95.4	94.0	88.6	90.5	91.1	85.9	66.0	59.7
May	94.3	94.1	88.9	90.6	91.0	85.4	65.4	
June	95.0	93.0	89.2	90.9	91.2	84.0	64.4	

	1926	1927	1928	1929	1930	1931	1932
July	95.1	92.6	88.6	90.9	89.4	79.4	64.2
Aug.	95.9	92.1	88.3	91.0	88.5	72.8	63.5
Sept.	95.9	92.1	88.5	91.3	88.2	72.7	63.1
Oct.	95.0	91.1	89.8	91.4	87.6	70.4	63.4
Nov.	95.2	90.6	90.9	91.4	87.2	69.8	64.2
Dec.	94.8	90.6	90.9	92.8	87.6	69.6	63.9

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Digitalis Up Again

For many months buyers have been advised of the statistical strength of digitalis leaves. With demand reported as improved and more active, available spot stocks have been further reduced. It will be several months before new crop goods can be obtained, and according to reports, there is little or nothing offered from abroad.

Further advances in spot prices during the past month sent values up to the basis of from 20c to 25c per pound as to quantity and seller.

Saffron Firm

The demand for Spanish saffron has changed little from the call for from one to three pound lots. The market was firm as to price, however, generally reflecting the primary market position where shippers have turned down bids or have nothing to offer. This commodity could be obtained at from $10.00 to $11.00 per pound as to quantity and seller.

Lobelia Steady

Lobelia is unchanged in price but in a firm position as supplies unsold are small and well held. Little disposition to offer was noted and the tendency was toward a rise in price. Herb sold at from 18c to 20c per pound, seed at from 21c to 26c as to quantity and seller.

Cloves Shaded

Although spot stocks of cloves are reported as small, inactivity on the part of consumers induced further shading of quotations. Values for Zanzibar dropped to from 9c to 9½c per pound.

Botanical Imports Greater

The total volume of crude drug imports gained from about 90,706,000 pounds in 1931 to 91,480,000 pounds during 1932, although the aggregate value of the imports declined from approximately $5,925,300 to $5,001,700, respectively. The trade in the leading botanicals such as psyllium seed, senna, and pyrethrum flowers has been taken up in preceding issues of this paper. In addition to the above, the following commodities had a greater import trade volume:

	1931		1932	
	Pounds	*Value*	*Pounds*	*Value*
Aconite	14,419	$1,387	134,304	$5,996
Buckthorn	98,056	3,182	10,720	112
Calamus	6,766	148	9,269	320
Derris root	4,508	470	38,337	6,951
Ephedra vulgaris	499,990	22,150	519,119	12,746
Hellebore	34,674	1,874	82,518	4,725
Soap bark	120,548	6,143	267,248	6,149
Digitalis	25,144	2,254	26,831	1,891

Pyrethrum Volume Good

Latest import figures on pyrethrum flowers would indicate that a very satisfactory volume of business has been done in this item during the winter months. During January and February, 1933 receipts totaled 1,622,232 pounds valued at $175,129, Japan accounting for 1,397,452 pounds worth $155,561 and Yugoslavia supplying most of the remainder.

Gum Benzoin Up Slightly

Siam gum benzoin was slightly higher in the spot market at from $1.05 to $1.30 per pound as to quality. With leading consumers of Sumatra gum being well supplied some decrease in trading in this grade was noted. Prices, however, remained steady at from 18c to 20c per pound.

Nux Vomica Imports Down

Imports of nux vomica into the United States have declined continuously during the past three years: 1930, 2,197,500 pounds, $56,100; 1931, 1,924,600 pounds, $58,500; and 1932, 957,289 pounds, $22,287. French Indo-China and British India were the principal origins of the above imports having supplied in 1932 411,811 pounds, $14,075 and 494,565 pounds, $7,408, respectively. The remainder was shipped from Great Britain.

Vanilla Beans Dull

There is nothing in the vanilla bean situation that would indicate a rise in prices during the months just ahead. Conditions in the spot market continued to reflect the conservative amount of trading that has characterized this commodity for some time now.

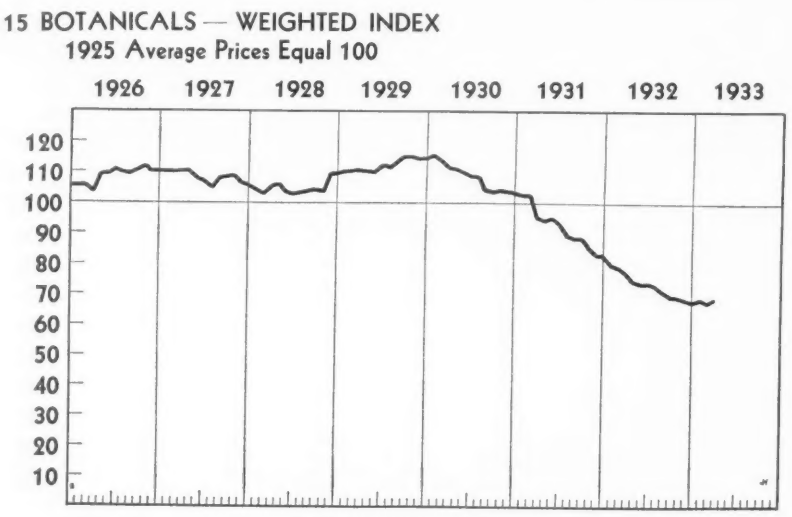
The only element of strength has been the almost certainty of a smaller Mexican crop but future prices are said to depend on the actual consuming demand that will develop during the season of larger consumption just ahead.

Prices remain unchanged with Mexican whole beans selling at from $3.00 to $4.00 per pound and the Bourbons ranging from 65c to $1.25 per pound as to quality.

Gum Tragacanth Inactive

Tragacanth was quite inactive during the past month, characterizing the gum market as a whole. No further price changes were noted, however, as declines over the past several months have placed this commodity on a basis where further declines are not likely. No. 1 gum sold for from 65c to 70c per pound.

	1925 Consumption
Agar	501,000 lbs.
Aloes	1,284,000 lbs.
B. Tolu	45,700 lbs.
Belladonna	250,000 lbs.
Buchu	105,700 lbs.
Cascara	4,000,000 lbs.
Digitalis	20,000 lbs.
Ergot	154,500 lbs.
Gentian	661,900 lbs.
Ipecac	61,600 lbs.
Licorice	6,000,000 lbs.
Nux Vom	1,500,000 lbs.
Orris	564,000 lbs.
Rhubarb	114,600 lbs.
Senna	2,984,000 lbs.



INDEXES

	1926	1927	1928	1929	1930	1931	1932	1933
Jan.	105.3	109.8	105.5	109.8	114.7	103.8	83.0	67.4
Feb.	105.3	109.8	104.3	110.4	116.0	102.8	79.7	68.6
Mar.	105.9	109.7	102.8	110.5	113.9	102.6	78.9	67.4
Apr.	103.6	110.0	105.8	110.9	111.4	95.2	76.7	68.7
May	109.2	110.4	106.2	110.3	110.9	94.5	74.4	
June	109.3	107.3	103.4	110.2	110.1	95.6	73.7	
July	110.9	107.0	102.7	112.2	108.7	93.4	74.1	
Aug.	109.4	105.3	103.1	112.0	108.4	89.1	73.3	
Sept.	109.2	108.4	103.5	113.2	104.6	88.3	71.1	
Oct.	110.6	108.6	104.3	115.6	103.7	88.6	69.3	
Nov.	112.0	108.8	103.8	115.3	104.7	85.5	69.1	
Dec.	109.7	106.2	109.7	114.9	103.9	83.0	68.0	

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Psyllium Seed Easy

The spot market for French psyllium seed was without price feature during the past month the range being from 9c to 11c per pound. Indian seed was somewhat easier at from 5c to 7c.

Of particular interest is the developments in the production of Greek seed of the variety Plantago major. This is a

Greek Psyllium Plants

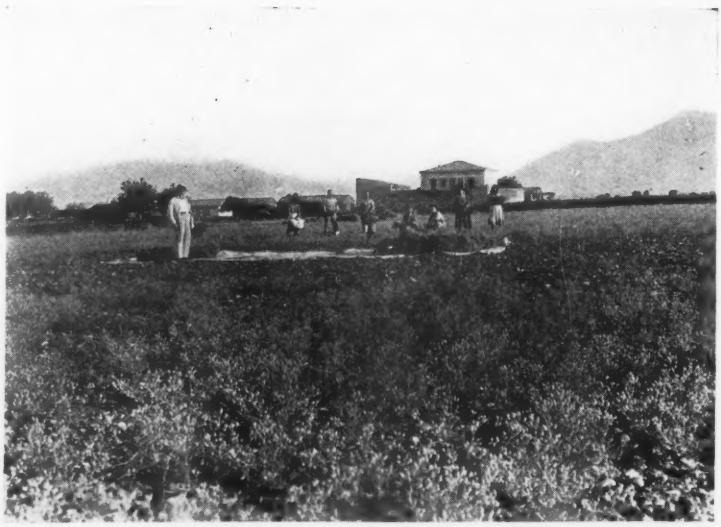
black seed and the prospects are favorable to a huge supply of this material.

During the 1932, area cultivated to psyllium in the Poloponnesus amounted to 1,250 acres and during the current year over 3,000 acres are under cultivation. The yield per acre is expected to run to as high as 2,143 pounds, this yield

Greek Psyllium 18" high

having actually been obtained in experimental plantings on irrigated lands. In round figures, therefore, seed from Greece would be available to the extent of some 6,150,000 pounds. This is a tremendous production when compared to the total United States importations of approximately 5,400,000 pounds in the past year.

Psyllium seed of all varieties in the amount of 450 tons entered the United States during the first two months of 1933. This amount of some 900,000 pounds compares favorable with importations during the previous year and if the average continues the total importations for 1933 will at least equal the record importations of 1932.



Harvesting Greek Psyllium Seed on Canvas

Gum Karaya Competitive

Competition in gum karaya was quite keen but the movement of high quality gum was sufficient to keep the market price unchanged. No. 1 powdered in barrels was offered at from 11c to 11½c per pound.

Gum Mastic Dull

Gum mastic was in small demand during the past month and leading importers shaded their quotations as an inducement to consumers. Prices ranged from 26c to 27c per pound as to quantity. The primary market position, however, was well maintained.

Drugs Detained

During the past month the following list of imports at the Port of New York were detained by The Food and Drug Administration as being in violation of act governing product in question.

Cantharides	15 cases
Nux Vomica	70 bags
Seamony Root	196 bags
Caraway Seed	2450 bags
Cumin	214 bags
Fennel	250 bags
Poppy	100 bags
Squill (Red)	119 bags
Stramonium	73 bags
Digitalis leaves	6 bales

Candelilla Wax Down

Candelilla wax was reduced during the previous trading period to the basis of from 9½c to 11c per pound. The almost total absence of activity in this item induced traders to offer at the more attractive levels.

Roman Chamomiles Lower

Roman chamomile flowers have been much reduced in spot supply especially as concerned top quality merchandise. Prices therefore advanced rather sharply to basis 30c to 35c per pound. Hungarian flowers were about unchanged from 14c to 15c and steady at this level.

Gum Arabic Firm

The local market for gum arabic was fairly steady as to prices with movement into consumption along narrow lines. Sales were accomplished under competition but without openly effecting quotation schedules, as values, for the most part, are in very low territory.

The primary market failed to show any important developments. The weather so far has been quite favorable to collection of the gum but what effect low prices will play as regards production has not as yet been determined.

The Egyptian gum arabic trade held up fairly well during 1932, despite unfavorable conditions in consuming markets, states the Commercial Attache, Cairo. Exports totaled 19,152 tons, compared with 20,086 tons in 1931. The value of such exports declined from about $2,802,700 in 1931 to $1,662,800 last year. In 1932, Great Britain was the destination of 1,825 tons, France, 3,050 tons, United States, 2,645 tons and Germany, 2,297 tons.

Cocoa Butter Slightly Lower

Cocoa butter fingers are quoted at from 24c to 25c per pound in single boxes representing a slight reduction in price. The reduction is said to have brought quotations close to cost of production and the market is therefore steadier after the decline. Demand remained light and somewhat irregular.

Celery Seed Firm

Celery seed continues very firm. Sellers in the primary market are not disposed to offer freely on basis of goods being guaranteed to pass on arrival here. Spot market price continued at recently established higher levels of from 36½c to 37c per pound.

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Patents

UNITED STATES PATENTS

Medicinal Tablets

Tablets of intestinal disinfectant or other medicines are formed with an enteric coating soluble only in an alkaline medium and another external coating which may contain a spice and is adapted to stimulate secretion of hydrochloric acid in the stomach. W. J. Kirk. U. S. P. 1,881,197, filed Dec. 6, 1929.

Therapeutic Compounds

Condense together equimolecular proportions of 4-dimethylamino-1-phenyl-2, 3-dimethyl-5-pyrazolone and a p-aminobenxoic acid ester such as the ethyl ester, as by heating the components together. B. Reuter and M. Reuter. U. S. P. 1,881,317, filed April 12, 1930.

Packaging Chemicals in Inert Atmosphere

Diffusion is effected between air to be removed from ether or like and an inert fluid (nitrogen) which is weighted with the material being packaged to facilitate diffusion. Various details of apparatus and operation are described suitable for filling and capping containers in suitable gaseous atmosphere. Assigned Mallinckrodt Chemical Works. E. Mallinckrodt, Jr. and N. V. Farr. U. S. P. 1,881,783, filed March 14, 1927. E. Mallinckrodt, Jr. U. S. P. 1,881,782, filed June 25, 1926, U. S. P. 1,881,784, filed Jan. 5, 1928.

Vitamin D

Solution of cholesterol in an inert solvent such as chloroform is refluxed with uranium acetate or other photo-catalyst, which is subsequently filtered off, and inert solvent evaporated. Or lipoid material such as dried yeast is refluxed with extractant (chloroform) in presence of photo-catalyst (manganese dioxide or uranium acetate) adapted to effect conversion to vitamin D, at substantially boiling point of extractant, for period of about 1 - 3 hours. Assigned Sun-A-Sured, Inc. A. J. Pacini, U. S. P. 1,880,977, filed Feb. 4, 1928. U. S. P. 1,880,978, filed Feb. 17, 1928.

Rectal Anesthetic

Tribromoethyl alcohol is used with such quantity of liquid non-primary aliphatic alcohol (amylene hydrate) that mixture is liquid at normal temperatures and stable to light and heating. Assigned Winthrop Chemical Co. U. S. P. 1,882,984, filed Dec. 7, 1928.

Disinfectant Composition

Tar-acid oil is used in admixture with water-gas-tar distillate, comparatively free from naphthalene and obtained as distillate from water-gas tar between 100° and 335°, water and so-called "liquid resinate" containing rosin acids, fatty acids, lignin, caustic substances and water and which is obtained as by-product in paper-pulp manufacture. Assigned American Tar Products Co. E. H. Hyde. U. S. P. 1,882,618, filed May 27, 1930.

GERMAN PATENTS

Stable Acridine Disinfectant Solutions

Add reducing agents to solutions of 3, 6-diaminoacridine salts or 3, 6-diamino-10-alkylacridinium salts and to salts of other aminoacridine or aminoacridinium compounds. Thus, an aqueous solution of 2, 7, 9-trimethyldiamino-10-methylacridinium chloride is stabilized by addition of acetone bisulfite. I. G. G. P. 556,748, filed Jan. 16, 1931. Addition to 548,835.

Theobromine

Natural material containing theobromine, such as cacao husks, is treated with calcium hydrate in cold, and theobromine is extracted from aqueous product by usual methods. C. H. Boehringer Sohn A. G. G. P. 542,993, filed April 13, 1926.

Mold Preventative for Foods

Mold is prevented from forming on food by coating surface with antiseptic glycerine compounds such as glycerine formate. Ges. f. Sterilization n.b.H. G. P. 558,956, filed Sept. 25, 1930.

Preparations of Iodine

Stable water-soluble iodine preparations for therapeutic uses are obtained by polymerizing a starch solution by heating with sulfuric acid until it no longer gives blue coloration with iodine. Evaporate product to dryness and mix resulting powder with an alkaline-ethereal solution of iodine and potassium iodide in presence of water. Resulting powder is then obtained by filtering off liquid by suction. Schering-Kahlbaum A. G. G. P. 557,831, filed June 4, 1930.

Therapeutic Antimony Salts

Oxygen compounds of quinquevalent antimony and aliphatic hydroxycarboxylic acids or their salts are treated with alkali and/or nitrogen bases. Reaction products are neutralized with suitable bases. I. G. G. P. 558,752, filed Nov. 2, 1928.

Compounds of Pyrocatecholarsenic Acid

Water-soluble complex compounds are obtained by treating pyrocatecholarsenic acid in neutral solution with oxides or hydroxides of metals or metalloids and alkali or bases. The complex compound is obtained from solution by pouring into acetone. I. G. G. P. 557,726, filed Oct. 18, 1930.

Solutions of Glucosides

Stable oily solutions of glucosides insoluble or difficultly soluble in oils, for injection purposes, are obtained by dissolving them in alcohols containing at least six carbon atoms, such as octyl-, decyl-, benzyl-, or phenylethyl alcohol, and mixing resulting solution with oil. Thus, digitalin is dissolved in benzyl alcohol and solution mixed with olive oil. Chemische-Pharmazeutische A. G. G. P. 557,991, filed Mar. 13, 1928.

Physiologically Active Extracts

Male and female organs are hydrolyzed, the hydrolyzate is concentrated or evaporated to dryness and treated with an organic solvent. Solution of lipoid-soluble hormones is obtained, leaving water-soluble hormones in aqueous or dry residue. Products act as nerve stimulants and tonics. S. A. Ind. Chim. Bale. G. P. 557,663, filed September 22, 1928.

Physiologically Active Preparations

Growth promoting water-soluble preparations are obtained by extracting freshly pulverized thymus glands with acetone and an organic solvent non-miscible with water to remove impurities and growth-arresting substances. Purified product is extracted with water. Albumin is precipitated from extract and aqueous solution evaporated. S. A. Ind. Chim. Bale. G. P. 557,664, filed July 20, 1930.

Disinfectants

Suitable disinfectants for animal diseases, such as foot-and-mouth disease, caused by a virus, consist of bisulfites in which sulfurous acid is combined with weak base, like ammonium bisulfite. Chem. Fabr. von Heyden A. G. G. P. 557,712, filed Nov. 30, 1926.

Pure Glycerine

Treat crude glycerine under low pressure with gases or vapors or mixtures containing low-boiling liquids in very finely-divided condition. Thus, crude glycerine (containing 82% glycerine) is treated with wet steam or carbon dioxide sprayed with benzol at 20-30 mm. pressure, to give glycerine of 99% purity. I. G. G. P. 557,802, filed Mar. 15, 1929.

Tribromoethyl Alcohol

Bromal is reduced with alkyl compounds or alkyl halogen compounds of metals other than magnesium, e. g., with aluminum diethyl iodide. I. G. G. P. 559,253, filed Feb. 26, 1931.

Medicinal Arsenic and Stibonic Compounds

Aminodihydroxybenzene carbamic acid esters are diazotized and product treated with arsenite or antimonite. I. G. G. P. 559,733, filed May 12, 1931.

Therapeutic Ethylhydrocupreine Derivative

Water-soluble compound of one molecule ethylhydrocupreine, two molecules sulfosalicylic acid and two molecules hexamethylene tetramine is prepared by bringing components together in various

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Cinchophen U. S. P.
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ways. Laboratori Biochim. S. A. G. P. 557,448, filed Sept. 5, 1931.

Vanillin, Isovanillin

Isochavibetol is separated from crude mixture with isoeugenol by cooling and is transformed into latter by methylation. Accumulated crude isoeugenol is purified by acylation and crystallization of acyl derivative and purified product is finally oxidized to vanillin. J. D. Riedel-E. de Haen A. G. G. P. 557,457, filed Jan. 29, 1926. Addition to 505,404.

Bile Acid Derivatives

Products stimulating lymphatic gland and arresting hemorrhage are cholonic acid, obtained by treating cholic acid with concentrated perchloric acid for 20 hours at atmospheric temperatures in presence or absence of diluent. Similar product, but darker in color, results from treatment at 125° C. Taurocholic acid and perchloric acid under similar conditions gives taurocholonic acid. O. Hinsberg. G. P. 558,152, filed Dec. 19, 1929.

Cosmetics and Pharmaceuticals

Powder preparations comprising an alkali or alkaline earth thiocyanate and an ethereal oil are improved by addition of terpinol, which keeps preparations dry and retards evaporation of ethereal oil. Terpinol hydrate may be added to preparations and latter warmed to produce terpinol. C. Weidner. G. P. 559,278, filed Jan. 30, 1931.

FRENCH PATENTS

Rice Powder

Rice powder is sterilized by action of ultra-violet rays. Soc. Hyg. Dermatol. de Vichy. French Patent 733,444, filed June 9, 1931.

Depilatories

Preparations, possessing caustic properties, are actually used for depilatory purpose. Such preparations generally contain quicklime or alkaline substances. Their use involves irritation and injury to skin. New depilatory removes hair by roots by mechanical action. Preparation has moderately low melting point, so that it can be readily spread over skin in form of film, which imprisons hair. This film is strong enough not to break when stripped from skin and carries hair with it. Depilatory contains 16 parts rosin, 8 parts beeswax, 4 parts red sealing wax, 3 parts black or common pitch and 1 part of glue. Mixture is melted together on water bath and perfume, previously dissolved in alcohol, is added. Sebastian Besellschaft Novelle. French Patent No. 727,681, filed February 13, 1931.

Para-Oxy-Camphor

Para-oxy-camphor is product of important physiological properties. It is made in pure state with compound of campherol and glucuronic acid excreted in urine of living animals to which camphor has previously been administered internally. Thus 3 liters of urine excreted by dog to which camphor has been feed at rate of 5 grams per day are mixed with 300 cc. of saturated hot solution of lead acetate. Solution is filtered to remove deposited impurities and to clear filtrate are added 800 cc. of saturated solution of lead subacetate and quantity of volatile alkali. Compound of campherol and glucuronic acid present in urine is precipitated as white lead salt. Precipitate is recovered and treated with dilute solution of sulfuric acid; white pulverulent precipitate formed is separated by filtering. It is principally lead sulfate. Filtrate is kept acidified with sulfuric acid and hydrolyzed by heating on water bath for several hours. Ether is added to filtrate after cooling and mixture vigorously agitated; ethereal product is removed and ether driven out by distillation. Residual substance is digested with hot ligroin. On cooling pure para-oxy-camphor separates from solution. Kenzo Tamura, Yaslihiko Asahima, Cyokujo Kihara and Morizo Ishidate, Japan. French Patent No. 727,770, filed April 17, 1931.

BRITISH PATENTS

Hormones

Hormone, which induces precocious sexual maturity and is free from oestus-promoting hormones, is obtained from placenta by first treating this with lipoid solvent, such as acetone, to remove oestus hormone. Then residue is subjected to hydrolytic action of dilute acids, dilute alkali solutions or under netural conditions, after any trace of acetone is completely removed. Hormone is then recovered from liquid, that is thus obtained, for instance by precipitating it by addition of relatively large volume of alcohol. Organic solvent, which contains oestus hormone, is worked up in usual manner. I. G. Farbenindustrie A.G., Frankfurt-am-Main, Germany. B. P. No. 378,647, filed August 19, 1931.

Coatings from Medicines

Coatings for medicines intended to pass unchanged through stomach but to come into action in intestines, consist of mixtures of cellulose esters or ethers with organic compounds which are soluble in intestines, such as triglycerides, waxes of low melting point, lipoids, lecithin, cholesterin and bile acids. Mixture may be used for coating pills and also for manufacture of capsules. Specified mixtures are celullose nitrate and olive oil, which are dissolved in mixture of ether and alcohol; cellulose acetate and castor oil which are dissolved in acetone, this solution being applied as an outer coating to pill which has previously been coated with mixture of sugar and gelatin. Also mixture of nitrocellulose and lecithin dissolved in mixture of alcohol and ether and is used for capsules. Coatings, made from cellulose esters and ethers, are also specified. K. Glaessner, Vienna, Austria. B. P. No. 378,714, filed November 4, 1931.

Antiseptics and Disinfectants

Acids or acid-reacting compounds are rendered effective as disinfectants and antiseptics by addition of thiocyanate. Acids, such as acetic acid, citric acid, tartaric acid and pyromucic acid are stated to be useful for general application. Acids, such as hydrochloric acid, and sulfuric acid, may also be used. Thiocyanic acid, betaine sulfocyanate or pyridine-betaine sulfocyanide, which have acid reaction in themselves, may also be used. Kali Chemie A.G., Berlin, Germany. B. P. No. 380,777, filed June 4, 1931.

Salves

Solid cosmetic is prepared by gelatinizing an alcohol solution of pyrazolone derivative or such solution mixed with an alkali salt of one of higher fatty acids, for example palmitic acid or stearic acid. Solution is obtained at such point of saturation or concentration, that with addition of salt, mass will solidify at ordinary temperature. Thus 30 parts by weight of fatty acid salt are dissolved in solution, which contains 120 parts by weight of alcohol, 120 parts by weight of phenyldimethylpyrazolone and 30 parts by weight of hot water. Solution is well agitated and then allowed to set. H. L. A. Jahard, Paris, France. B. P. No. 378,000.

Injection Medicines

Remedy for injection and also for use by local application in venereal and other diseases is prepared by adding solution of mercuric chloride in alcohol to alcoholic solution of potassium iodide and iodine. Reaction product in granular form, is dried and treated in water with sodium iodide to form scarlet-colored colloidal suspension. A method of preparing various dilutions of final product is also described. M. Pacella. B. P. No. 378,578.

Solutions of Alkaloidal Salts

Stable solutions of alkaloid salts, purine bases, hypnotics and camphor for therapeutic use are obtained by adding pyridones or piperidones to solutions of same in water. The pH coefficient of solutions varies between 6.0 and 6.8. For example quinine hydrochloride is mixed with 1-methyl-2-pyridone, and also with 1-alpha-beta-dioxypropyl-2-pyridone. Latter compound is obtained by oxidation of pyridine monochlorohydrin addition product with alkaline solution of potassium ferricyanide. Other examples are quinine hydrochloride and 4-pyridone, quinine hydrochloride and 1-ethyl-2-piperidone; also camphor with 1-methyl-2-piperidone, sulfonal and ethyl-piperidone, emetine hydrochloride with methyl-piperidone. F. Hoffmann La Roche & Co., A.G., Basle, Switzerland. B. P. No. 381,012, filed December 4, 1931.

Abstracts

Determination of Ergosterol

Spectrophotometric method for determining ergosterol in cholesterol may be made applicable to concentrations higher than 0.1% to 0.05% with pure cholesterol. W. Menschick and I. N. Page. Z. physiol. Chem. vol. 211, p. 246-252.

Derivatives of Choline

Acetyl ester of beta methylcholine appears to offer greatest possibility of clinical usefulness. A. Simonart. J. Pharmacol. vol. 46, p. 157-193.

Intestinal Antisepsis

Detailed tests were made on mice with large number of compounds. Even toxic doses in general did not affect intestinal flora of mice to appreciable degree. Lumiere's silver preparation did lead to lessening in numbers of coliform group. J. G. Graham. J. Pharmacol. vol. 46, p. 273-283.

Esters of Monofluorophosphoric Acid

Dimethyl and diethyl esters were made. Physiological effect is quite strong; odor is pleasant and aromatic; but headache and suffocation occur few minutes after inhalation, then vision troubles; effects last few hours and are caused by minute quantities. W. Lange and G. v. Krueger. Ber. Deut. Chem. Gessell. vol. 65B, p. 1598-1601.

Strophanthus Differentiation

Strophanthus hispidus may be distinguished from S. kombe and S. gratus by the presence of calcium oxalate which shows up as strongly anisotropic crystal rosets when cotyledons are examined in polarized light. M. Wagenaar. Pharm. Weekblad. vol. 69, p. 1257-1263.

Turbidity in Raspberry Juice

Turbidity is due to precipitation of microcrystals of ellargic acid, a phenomenon easily distinguishable from other turbidities (pectin, mucilage, yeast). Reheating or filtering is unsatisfactory; allow precipitate to settle in cooled room and decant off clear liquid. N. Kunze-Krause. Pharm. Zentralhalle. vol. 73, p. 609-611.

Evaluation of Ergot

Flask extraction is replaced by one Soxhlet apparatus, sodium bicarbonate is used as alkalization agent in place of magnesium oxide to avoid interference by magnesium soap and gravimetric determination replaces titration. W. Kussner and P. Wolff. Pharm. Ztg. vol. 77, p. 342-343.

Composition of Vinca Minor L

Drug contains several tannin-like compounds related to protocatechuic acid and 1% of glucoside, called vincoside. It is amorphous, odorless and of bitter taste. F. Rutishauser. Bull. sci. pharmacol. vol. 39, p. 475-477.

Fermented Tuberculin

Prepare medium of peptone 10, glucose 50, potassium phosphate 3, magnesium sulfate 5, and water 1,000 parts; adjust to pH 7.0 and mix with equal volume of tuberculin solution 1:20 in physiological salt solution. Sterilize at 110° for 20 minutes. After cooling, add yeast and keep for two months at 28°. Adjust the pH with sodium bicarbonate solution to 7.4, keep for two days at 12-15° C. and filter through Chamberland filter. Preparation permits use of unusually large quantities of tuberculin. A. Komis. Presse med. vol. 40, p. 3-4.

Alcoholic Tincture of Belladona

Best results of extraction are obtained by maceration, but several days are required for exhaustion of drugs. Time can be reduced to three hours by digesting at high temperature. Loss of active material in this case amounts to only few per cent. J. E. Machado. Rev. Farm. (Buenos Aires). vol. 76, p. 199-209.

Calcium Camphosulfonate

Compound is easily soluble in water, non-irritating when injected and of low toxicity. It increases blood pressure and reduces heart beats. It reduces coagulability of blood; therapeutic doses do not change pH of blood. Its uses in heart diseases is recommended. P. Marfori and V. Susanna. Rass. terap. patol. clin. vol. 3, No. 2 (1931).

Fluid Extract of Ipecacuanha

Methods official in Swiss, Danish, Swedish, British and American Pharmacopeias are reviewed in connection with diacolation procedure of Breddin. Swedish method is preferred. F. Gstirner. Pharm. Ztg. vol. 77, p. 1112-1113.

Purity of Novocaine

Dissolve 0.1 g. in 25 cc. 60% alcohol, add phenolphthalein and titrate HCl with tenth normal sodium hydroxide to set free the organic base. Then add rosolic acid indicator and titrate free base with tenth normal sulfuric acid. Purity is calculated from relative amounts of base and hydrochloric acid found. J. A. Sanchez. Rev. centro estud. farm. bioquim. vol. 22, p. 49-51.

Chemical Assay of Thyroid

To determine total iodine, heat 0.5 g. dried thyroid with sodium carbonate according to procedure given in detail in the original, boil with water and filter. Acidify filtrate with 50% sulfuric acid, add 10 cc. 10% acid in excess and few drops of bromine. Heat until solution has only slight color, cool, add 0.2 cc. 25% phenol solution in glacial acetic acid solution and, after allowing excess bromine to act upon phenol, add potassium iodide and titrate with hundredth normal sodium thiosulfate. By above procedure, iodine has been converted into sodium iodate. To determine acid-insoluble iodine, boil 1 g. of thyroid for four hours with 10 cc. normal sodium hydroxide under reflux condenser. Dilute to 25 cc., filter hot and wash with a little hot water. Transfer residue to beaker, add 11 cc. normal sulfuric acid, making sure liquid is slightly acid to Congo red paper. Stand overnight, decant off liquid, and collect residue. Transfer to nickel crucible, dry and treat as above for total iodine. Standardization of thyroid on the basis of acid-insoluble iodine is satisfactory. G. Middleton. Analyst. vol. 57, p. 603-609.

Borates as Preservatives

Boric acid and sodium borate cause severe gastroenteritis and central paralysis in rabbits. Lethal dose is 4 g. per kilo. Elimination is slow, and substances can be accumulated in organism, so that they may lead to symptoms in man after frequent ingestion. Antiseptic values are extremely low, solutions of 4-6% inhibiting development of streptococci and staphylococci without killing them; putrefaction is not inhibited by such solutions. E. Buzzo and R. E. Carratula.

Emulsification Process

Two types of emulsion are described for rivanol and castor oil which are to be given to children. 1. In test tube containing 5 g. lime water add 0.15 g. rivanol and shake vigorously until nearly or quite dissolved. In tarred mortar add 10. g. castor oil and lime water containing rivanol, triturate until concentrated emulsion develops, add little honey and yolk of one egg during vigorous trituration, then add 10 g. of calcium carbonate and 15 g. sugar, increasing weight finally to 120 g. with honey. 2. Triturate the rivanol (0.08 g.) in lime water as before, transfer to tarred mortar containing 10-20 g. castor oil, triturate vigorously, then mix with 90-80 g. castor oil. L. David. Pharm. Ztg. vol. 77, p. 1099.

Separation of Alkaloids by Buffers

Acetic acid plus sodium acetate and ammonia plus ammonium chloride are used as buffers. Harmine and harmaline are separated by first buffer by dissolving one kilogram of the hydrochlorides in 10 kilos water at 80-85° C. Solution is filtered through animal charcoal and treated with three kilos sodium acetate, which precipitates 80% of pure harmine. To separate rest of harmine, operation is repeated on mother liquor. Strychnine is separated from brucine by dissolving one part of mixed salts in 10 parts of 10% ammonium chloride and treating with 10% ammonia water at 80-85° C. until precipitation is complete. Strychnine is filtered and cooled mother liquor is treated for brucine with sodium hydroxide. S. Elgazin. Khim. Farm. Prom. 1932, p. 128-131.

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Chemicals

Acetanilid
Hypoquinone

Acetanilid, USP, 200 lb bbls..lb	.26	.27
Acetone, pure 350 lb drs wks..	.11	.12
Acetphenetidin, 225 lb bbls..lb.	1.20	1.25
ACID, Acetylsalicylic, 225 lb bbls.	.70	.75
Agaric, 1 oz vials....oz	...	3.50
Arsenous, USP, 220 lb bbls lb.	...	.18
Benzoic, USP, 100 lb bbls.lb.	.48	.52
Boric, 300 lb bbls.....lb.	.07	.08
Cacodylic, 5 lb. bot.....lb.	...	8.00
Camphoric, USP, VIII 1 lb bot.....lb.	4.82	4.82
Carbolic, USP, crys 112 lb tins.....lb.	.17	.18
Cinnamic, 5 lb cans.....lb.	2.85	3.25
Citric, USP, crys 230 lb bbl lb	...	.29
USP, crys imp. 112 lb keg .....lb.	.34	.36
USP, powd 200 lb bbl...lb.	...	.31½
Gallic, USP, 150 lb bbls..lb.	...	.74
Glycerophosphoric, 25% 1 lb bot.....lb.	1.40	1.75
Hydriodic, USP, 10% 5 lb bot.....lb.	...	.59
Hydrobromic, USP, 40% 155 lb. cbys.....lb.	...	.55
Hypophosphorous, USP, 30% .....lb.		
5 gal demis.....lb.	...	.75
Lactic, USP, VIII 100 lb cbys lb.....	.45	.47
USP, X 100 lb cbys.....lb.	.47	.49
Phosphoric, USP, Syr 70 lb drs.....lb.	.14	.15
Pyrogallic, crys 5 lb cans..lb.	1.30	1.40
Resublimed, 5 lb cans...lb.	1.60	1.70
Salicylic, USP, 100 lb bbls.lb.	.40	.45
Stearic, double pressed, bags .....lb.	.08	.08½
Triple pressed, bags,....lb.	.10¼	.12
Succinic, 100 lb bbls.....lb.	...	1.35
Sulfurous, USP, 6% 100 lb cbys.....lb.	.05	.06
Tannic, USP, fluffy 50 lb bbls. .....lb.	.80	.83
Powd 200 lb bbls.....lb.	.70	.75
Tartaric, USP, 300 lb bbls.lb	.20	.20½
Aconitine, Alk, crys 1 oz vials .....oz.	...	29.00
Amorphous, 1 oz vials....oz.	...	17.00
Agaricin, 1 oz vis incl.....oz.	...	2.32
ALCOHOL, Benzyl, 5 lb bot lb.	1.20	1.35
F. O. B. Works.....		
Ethyl, USP, 190 pf 54 gal drs.....gal.	...	2.535
Grain U. S. P. bbls....gal.	...	2.565
Pure tax free drums...gal.		
Ethyl.....	...	.445
Grain.....	...	.475
Denatured, (drums included) add 5c for bbls.		
No. 1 spec.....gal.	.335	.415
No. 5 comp.....gal.	.385	.465
23 a, spec.....gal.	.37	.49
39 b, spec.....gal.	.38	.50
40 m, spec .....gal.	.34	.46
Isopropyl refd 98-99% drs. incl.....gal.	.55	.60
Phenylethyl, 1 lb bot.....lb.	4.30	4.50
Aloin, USP, 100 lb cases....lb.	.72	.77
Aluminum Acetotartrate kegs .....lb.	...	1.60
Amidipyrine, 10 lb boxes....lb.	4.00	4.10
AMMONIUM, Acetate 100 lb kegs.....lb.	.26	.33
Benzoate, USP, 1 lb bot...lb.	...	1.27
Borate, 10 lb bot.....lb.	...	.35
Bromide, USP, 450 lb bbls.lb.	.35	.36
Carb, USP, lump 150 lb kegs .....lb.	...	.11
USP, powd 150 lb kegs..lb.	...	.12
Citrate, 100 lb kegs.....lb.	.90	1.30
Ichthyolate, as to brand..lb.	4.00	4.50
Iodide, USP, 25 lb jars...lb.	...	3.72
Phosphate, dibasic 250 lb bbls .....lb.	.48	.50
Salicylate, USP, 100 lb kegs .....lb.	1.15	1.20
Valerate, USP, 25 lb jars...lb.	2.75	2.90
Amylene Hydrate, 1 lb bot..lb.	...	7.10
Antipyrine, USP, 100 lb cans.lb.	2.00	2.50
Apomorphine Hydrochloride, ¼ oz. vials.....oz.	22.45	22.70
Arecoline Hydrobrom, 1 oz vials f.....oz.	4.25	4.50
Aspidospermine Amorphous..oz.	...	15.00
Atropine Alk, USP, 1 oz. vials .....oz.	5.00	5.25
Methyl bromide, 1 oz vials.oz.	...	25.00
Sulfate, 5 oz cans.....oz.	...	2.50
Single ounce.....oz.	...	3.00
Barbital, 1 lb. bot.....lb.	3.40	3.50
Barium Iodide, 5 lb box.....lb.	...	4.35
Sulfate, X-ray diagn bbls..lb.	.09½	.10
BAY RUM Porto Rico, 45 gal. bbls.....gal.	.75	.80
Domestic syn. 50 gal bbl..gal.	.70	.75
St. Thomas, 50 gal bbls...gal.	.80	.90
Benzocaine 25 lb. lots..... 1 lb.l ots.....lb.	5.00	5.75
Benzonaphthol, 5 lb boxes...lb.	2.50	2.60
Benzoyl Cholride, 500 lb dr..lb.	1.00	1.05
Benzyl Benzoate, Medicinal FFC.....lb.	1.20	1.40
Chloride Redis, 160 lb cby.lb.	.30	.35
Formate, 1 lb bot.....lb.	3.25	3.50
Succinate, 160 lb cby.....lb.	...	5.25
BISMUTH, metal 100 lb cases .....lb.	...	.85
Ammon. Citrate, USP, 5 lb cans.....lb.	...	3.10
Betanaphtholate, 5 lb box.lb.	...	2.90
Citrate, USP, 5 lb cans....lb.	...	2.45
Chloride..... .....lb.	...	2.35
Hydroxide .....lb.	...	2.65
Nitrate, 25 lb jars.....lb	...	.95
Oxide anhydrous.....lb.	...	3.05
Oxychloride, 25 lb boxes...lb.	...	2.60
Salicylate, 25 lb boxes.....lb.	...	1.55
Subcarbonate, USP, 25 lb boxes.....lb.	1.25	1.30
Subcarbonate, X-ray diag 1 lb. bot.....lb.	2.20	2.27
Subgallate, USP, 25 lb boxes .....lb.	1.35	1.40
Subiodide, 5 lb lots.....lb.	...	3.40
Subnitrate, USP, 25 lb jar..lb.	.95	1.00
Subsalicylate, USP, 25 lb boxes.....lb.	2.15	2.20
Tannate.....lb.	...	2.15
Borax, crys USP, 400 lb bbls..lb.	...	.04½
Bromoform, USP, 5 lb bot cases .....lb.	1.65	1.90
Butylchloral Hydrate bot....lb.	4.00	5.00
Cadmium iodide, 10 lb bot...lb.	...	3.65
CAFFEINE Alk, USP, 1..... 100 lb kegs.....lb.	1.95	2.00
Citrated, 50 lb cans.....lb	1.55	1.60
Hydrobromide, 1 lb bot...lb.	4.80	5.00
Hydrochloride, 1 lb bot...lb	6.05	6.55
Sulfate, 1 lb bot.....lb.	5.40	5.90
Sodium Benzoate, tins....lb.	...	3.05
Salicylate, tins.....lb.	...	2.95
Calcium Bromide, 100 lb cs..lb.	...	.60
Carb, USP, 175 lb bbls....lb.	.05	.06
Gluconate, Gran. 125 lb..... bbls.....lb.	.47	.52
Powd.....lb.	.47	.52
Glycerophos, 250 lb bbls...lb.	...	1.05
Hypophos, USP, 25 lb cans lb.	.55	.60
Iodide, 5 lb bot.....lb.	...	3.75
Lactate, USP, 500 lb bbls lb.	.35	.40
Lactophosphate Soluble...lb.	...	1.20
Powdered tins.....lb	...	1.00
Insol, powd tins.....lb.	...	.50
Phosphate & Sulfate Tooth Paste grade, Works..lbs.	.03	.06
Sulfide, USP, 100 lb drs...lb.	.21¼	.24
CAMPHOR, Jap. ref. slabs 100 lb. cases.....lb.	.38	.39
Refined powd.....lb.	.39	.40
¼ oz tab, 100 lb cases....lb.	.45	.46
Liniment, bbls.....gal.	2.10	2.20
Monobrom, 100 lb cases...lb.	1.60	1.65
Casein edible, 100 lb kegs...lb.	.45	.55
Charcoal Animal medicinal jars incl.....lb.	...	.50
Charcoal Wood, powd, 100 lb. bbls.....lb.	.06	.07
Chloral Hydrate, USP, 25 lb jars.....lb.	.75	.77
100 lb drums.....lb.	.70	.75
Cholesterin.....lb.	11.00	17.00
Chloroform, USP, 50 lb drs...lb.	.25	.27
Chlorophyll, 1 lb. bot.....lb.	3.75	4.00
Chromium Sulfate Scales, tins .....lb.	.45	.50
Powdered tins.....lb.	.50	.55
Chrysarobin, 50 lb tins....lb.	2.50	2.55
Cinchonine Alk, 100 oz tins.oz.	...	.30
Crystal.....oz.	.43	.46
Sulfate, 100 oz tins.....oz.	...	.20
Cinchonidine Sulfate, 100 oz tins .....oz.	.28	.31
Cinchophen, U.S.P. kegs...lb.	2.75	3.25
Cocaine Alk, USP, 1 oz vial..oz.	...	11.07
Hydrochloride, USP,.....oz.	...	8.50
CODEINE Alk, 1 oz vials, 10 lots.....oz.	...	10.52
Hydrobromide.....oz.	...	8.92
Hydrochloride.....oz.	...	9.52
Nitrate, oz vl 10 oz lots....oz.	...	9.80
Phosp. oz vl, 10 oz lots....oz.	...	7.92
Salicylate.....oz.	...	8.25
Sulfate, oz vl, 10 oz lots...oz.	...	8.42
Colchicino Alk, USP, 1 oz vl.oz.	...	20.00
Salicylate, 1 oz vls.....oz.	...	35.50
Cream Tartar, USP, 300 lb bbls .....lb.	.14¾	.15½
Imp. powd. 224 lb bbls....lb.	.17¾	.17¾
Creosote, USP, 42 lb cbys....lb.	.45	.47
Carbonate, 150 lb.....lb.	1.50	1.60
Cresol, USP, 400 lb drums...lb.	...	.18
500 lb drums.....lb.	.12	.15
DIGITALIN Pure, 1 oz vial..oz	15.00	15.50
Dover's Powder, USP, 5 lb tin .....lb.	2.75	2.80
Duboisine Sulfate, 1 oz vl....oz.	35.00	40.00
Emetine Alk, 15 gr vial.....oz.	...	.85
Hydrochloride, USP, 1 oz vl .....oz.	11.00	11.25
15 grain vials.....oz.	2.50	2.70
Ephedrine, alk. 25 oz. tins,..oz.	1.50	1.90
Hydrochloride, 25 oz. tins, oz.	1.30	1.65
Sulfate, 25 oz. tins.....oz.	1.30	1.65
Epsom Salts, USP, 200 lb bbls .....100 lb.	2.25	2.50
Imp. 100 lb bbls.....100 lb.	2.30	2.35
Ergotin Bonjean, 1 lb jars...lb.	18.50	19.00
Eserine Alk, 1 oz vials.....oz	...	50.00
Salicylate, 1 oz vials.....oz.	...	40.00
Sulfate, USP, VIII 1 oz vials .....oz.	...	40.00
ETHER, USP, 55 lb drums..lb.	...	.11
Anaesthesia, 55 lb drums..lb.	.21	.23
Nitrous, 1 lb bot.....lb.	.75	.77
Ethyl Chloride, 200 lb bot...lb.	.22	.24
Ethyl Iodide, 5 lb bot.....lb.	6.00	6.05
Formaldehyde, USP, 100 lb cbys lc-l wks.....lb.	.07	.07½
Gall Extract.....lb.	.20	.21
GLANDULAR SUBSTANCES 1 lb. lots		
Duodenal Substance.....	...	3.75
Liver Extract 1-20	...	5.75
Orchic Substance (Testicular)	...	3.75
Ovarian Substance, whole ..	...	12.50
Ovarian Residue	...	10.00
Pituitary Substance, whole..	...	45.00
Pituitary Substance, Anterior Lobe	...	40.00
Thyroid, U.S.P.	...	3.75
Oxgall Powder.....	...	1.25
GLYCERIN, CP, 550 lb drums .....lb.	...	.10½
Gold Chloride, bottles.....oz.	12.00	12.50
Guaiacol, liq. USP. 100 lb. cbys.....lb	1.60	1.70
Crystals.....lb	2.25	2.50
Benzoate, 1 lb bottles.....lb.	...	3.00
Carbonate, 5 lb boxes.....lb.	1.75	1.80
Halazone, 5 lb bot.....lb.	2.75	3.25
Hexamethylenetetramine, USP, 100 lb dr.....lb.	.46	.47
Homatropine Hydrobrom USP. .....oz.	...	14.50
5 oz and 1 oz vials.....oz.	...	13.50
Hydrastine Alk, USP, 1 oz vial .....oz.	20.50	21.00
Hydrochlide, USP, 1 oz vials .....oz.	20.50	21.00
Sulfate, 1 oz vial.....oz.	22.50	23.00
Hydrastinine Hydrochloride, USP, 15 gr vials.....oz.	...	40.00
Hydrogen Peroxide, USP, soln 375 lb bbls.....lb.	.03¼	.04½
Hyoscine Hydrobrom, USP, 1 oz vials.....oz.	13.07	35.00
5 oz, 1 oz vials.....oz.		13.57
Hyoscyamine Alk, crystals, 1 oz vials.....oz.	...	25.07
Amorphous, 1 oz vial...oz.	...	75.07
Hydrobromide, USP. 1 oz vial .....oz.	...	25.00
Sulfate, 1 oz vial.....oz.	...	25.07
Hypoquinone, 100 lb kegs...lb.	...	1.10
ICHTHYOL, tins.....lb.	4.00	4.25
Iodide Arsenous, 5 lb bot...lb.	...	5.20

Arsenous-Mercuric soln, 5 lb bot....lb	...	.26
Iodine, crude, 200 lb kegs...lb.	...	1.95
Resublimed, 25 lb jars....lb.	...	2.65
Tincture bbls.....gal.	...	2.55
Iodoform, powd 10 lb bot...lb.	...	5.20
Iron & Ammonium Citrate, USP, 50 lb cans.....lb.	.42	.44
Chloride, USP, lump 400 lb bbls.....lb.	.06	.08
Citrate, USP, VIII 25 lb can .....lb.	.94	.99
Hypophosphite, 5 lb cans..lb.	1.40	1.50
Iodide, 1 lb bottles.....lb.	...	3.00
Phosphate, USP, 50 lb cans .....lb.	...	.69
& Potas Oxalate, 250 lb bbl .....lb.	...	.45
Pyrophosphate, USP, 50 lb .....lb.	.74	.80
& Sod Oxalate, 50 lb. cans.lb.	...	.30½
Sulfate, USP, crys bbls....lb.	.04	.04½
Ferrous dried bbls.....lb.	...	.08
Valerate, tins.....lb.	2.75	3.00
Jalap Resin, USP lumps, 5 lb tins.....lb.	...	4.00
Powdered, tins.....lb.	...	4.65
Lanolin, hyd 350 lb. bbls....lb.	.13	.15
Anhydrous, 350 lb. bbls...lb.	.14	.16
Lead Acetate, USP, 100 lb kegs .....lb.	.16½	.19½
Iodide, USP, VIII 5 lb bot.lb.	...	2.55
Lecithin, 5 oz. jars.....oz.	1.00	1.30
Vegetable, cans.....lb.	1.00	2.50
Licorice Ext Mass, cases....lb.	.19	.20
Compound powder, bbls...lb.	.11	.13
LITHIUM CARBONATE, *250 lb bbls.....lb.*	1.25	1.35
Citrate, USP, 100 lb kegs..lb.	...	1.40
Iodide, 5 lb bottles.....lb.	...	4.60
Lobeline Sulfate, ¼ oz vial...oz.	...	8.75
Magnesium Carbonate, USP, 100 lb bbls.....lb.	.08	.09
English, oz blocks.....oz.	.16	.18
Glycerophosphate, 5 lb tins.lb.	3.20	3.25
Hypophosphite, 5 lb cans..lb.	1.10	1.15
Oxide, 100 lb. cases.....lb	.35	.45
Salicylate, 100 lb kegs.....lb	...	1.10
Stearate, bbls.....lb.	.18	.20
Manganese Glycerophosphate, 5 lb tins.....lb.	2.90	3.00
Hypophosphite, USP, VIII 5 lb cans.....lb.	1.35	1.40
Iodide, 1 lb bottles.....lb.	...	5.35
MENTHOL, USP, 60 lb cases .....lb.	2.90	3.10
Synthetic, cases.....lb.	2.50	2.75
Mercury Metal, 75 lb flasks...fl.	54.50	56.00
Bichloride, crys 25 lb box..lb.	...	.82
Gran powd, 100 lb kegs..lb.	...	.67
Bisulfate, 25 lb boxes.....lb.	...	1.48
Blue Mass, 25 lb boxes....lb.	...	.84
Powd, 25 lb boxes.....lb.	...	.85
Blue Ointment, USP, 50%, 25 lb cans.....lb.	...	.91
Mild 30%, 25 lb cans....lb.	...	.64
33 1/3% mercury.....lb.	...	.67
Calomel, 50 lb boxes.....lb.	...	1.15
English.....lb.	2.65	2.75
Iodide, green, 25 lb jars....lb.	...	3.95
Red, USP, 25 lb jars...lb.	...	3.55
Yellow, USP, VIII, 25 lb jars.....lb.	...	3.65
Red precip Powd.USP, 25 lb. boxes.....lb.	...	1.24
White precip, Powd., USP, 25 lb. boxes.....lb.	...	1.31
Salicylate, 25 lb bot.....lb.	...	2.32
With chalk, USP, 25 lb boxes .....lb.	...	.69
Methanol, Pure 1c-1 drs....gal	...	.44
Methyl Salicylate, USP, 50 lb cans.....lb.	.40	.42
Methylene Blue, USP, med 5 lb cans.....lb	2.00	2.05
Milk powd, 150 lb bbls.....lb.	.09	.12
MORPHINE Alk, 5 oz tin...oz.	10.90	10.95
Acetate, 5 oz tins.....oz.	8.75	8.80
Hydrobromide, 5 oz tins, 10 oz lots.....oz.	8.75	8.80
Hydrochloride, 5 oz tins, 10 oz lots.....oz.	8.75	8.80
Ethyl Hydrochloride, 5 oz tins 10 oz lots.....oz.	...	10.85
Sulfate, 5 oz tins, 10 oz lots oz.	7.85	8.00
Naphthalene Flake, 175 lb bbls wks.....lb.	.04½	.05
Balls, 250 lb bbls wks.....lb.	.05½	.06
Neo-cinchophen 5 lb. lots..... 1 lb. lots.....lb.	15.00	18.00
Oxgall, Purified, 5 lb bot....lb.	2.00	2.50
USP Extract, 5 lb. bot.....lb.	1.80	1.90
Oxyquinoline Sulfate, tins...lb.	5.00	5.75
Pancreatin, USP, 100 lb.....lb.	...	1.90
Paraffin, refd, 200 lb cs slabs 118 -120 deg MP.....lb.	.08	.09
128-132 deg MP.....lb.	.07½	.07¾
Para-Aldehyde, USP, 100 lb. carboys.....lb.	.48	.50
Pepsin, USP, 100 lbs. 1:3000.lb.	...	2.25
100 lbs. 1:6000.....lb.	...	4.00
100 lbs. 1:10000 .....lb.	...	6.50
Peptone, powd., or granular 5 lb. 100 lb. lots.....lb.	.70	1.00
PHENOBARBITAL, U. S. P., 100 lb. lots. .....lb.	...	6.50
Phenolphthalein, U. S. P..... 100 lb drums.....lb.	...	.52
5 lb cans 100 lb lots..lb.	...	.60
Yellow.....	...	.47
Pilocarpine Hydrochloride, USP, 1 oz vials 25 oz lots .....oz.	...	3.25
Nitrate, 25 oz lots.....oz.	...	3.25
Single ounce.....oz.	...	3.50
Alkaloid, 15 gr vials.....vl.	...	.75
Piperadine, 25 oz bottles.....lb.	...	8.00
Popodhyllin 5 lb bottles.....lb.	4.35	4.50
Potassium Acetate, USP, 100 lb kegs.....lb.	.29	.30
Bicarb, USP, crys 320 lb bbls .....lb.	.09½	.10
Bromide, USP, crys 100 lb cs .....lb.	.31	.32
Citrate, USP, 100 lb. box..lb.	.42½	.43
Guaiacol Sulfonate.....ib.	1.95	2.25
Potassium Hypophosphite, 10 lb. cans .....lb.	.65	.70
Iodide, USP, 25 lb cases...lb.	...	2.00
Lactophosphate, 4 ox bot..lb.	...	.90
Permangan, USP, crys, 100 lb drs wks.....lb.	.16	.16½
Phosphate dibasic pure, kegs .....lb.	...	.49
Salicylate, 25 lb cans.....lb.	...	1.18
Sulfate, USP, VIII, 100 lb kegs.....lb.	.13	.15
Sulfocyanide, CP 15 lb jars lb.	...	.50
Tartrate, CP, tins.....lb.	...	.65
Pyrogallol, USP, see Acid Pyro-gallic.....	...	...
Quinidine Alk, crystals, 100 oz. tins.....oz.	.57	.66
Sulfate, 100 oz tins.....oz.	...	.40
QUININE SULFATE, USP, *100 oz tins.....oz.*	...	.30
1 oz tins, 100 oz lots....oz.	...	.40
Acetate.....oz.	...	.68
Arsenate.....oz.	...	.71
Benzoate.....oz.	...	.74
Bisulfate, USP.....oz.	...	.30
Citrate.....oz.	...	.46
Dihydrobromide.....oz.	...	.50
Dihydrochloride, USP....oz.	...	.49
Ethyl Carbonate .....oz.	...	.46
Ferrocyanide.....oz.	...	.69
Formate.....oz.	...	.66
Glycerophosphate.....oz.	...	.87
Hydrobromide, USP.....oz.	...	.45
Hydrochlorosulfate.....oz.	...	.49
Hypophosphite.....oz.	...	.65
Lactate.....oz.	...	.55
Phenolsulfonate.....oz.	...	.78
Phosphate.....oz.	...	.57
Salicylate, USP.....oz.	...	.48
Tannate, USP.....oz.	...	.38
Tartrate.....oz.	...	.69
Valerate.....oz.	...	.73
Urea Hydrochloride, USP.. .....oz.	...	.50
Rennet, N. F. 5 lb 1:25,000...lb.	2.95	3.50
Resorcinol, USP, 25 lb cans..lb.	1.57	1.65
Rochelle Salt, USP, 225 lb bbl .....lb.	.11½	.12
Rock Sugar, 5 lb boxes.....lb.	...	.15
Saccharin, USP, 10 lb cans...lb.	1.70	1.80
USP, Soluble, 10 lb cans...lb.	1.75	1.85
Salicin, USP.....lb.	...	12.50
SALOL, USP, 100 lb drums..lb.	...	.90
Saltpetre, powd, bbls wks....lb.	.06½	.08½
Santonin, USP, bulk.....lb.	.60	.65
Saponin, refined.....lb.	1.30	1.50
Seidlitz Mixture, 250 lb bb..lb.	.10	.10½
Silver Metal, American.....oz.	...	.29½
Iodide, 16 oz lots.....oz.	...	.69
Nitrate, 100 oz bottles....oz.	.21	.23
Nucleinate, bulk.....oz.	...	.37
Proteinate.....oz.	.39	.41
SODIUM BENZOATE, USP, 100 lb bbls.....lb.	.42	.47
Bromide, USP, 100 lb kegs.lb.	.31	.32
Cacodylate, USP, 25 lb bot .....lb.	4.75	5.90
Citrate, USP, X100 lb. box.lb.	...	.31½
USP VIII, 100 lb. box..lb.	...	.25
Glycerophosphate, N.F., crys 25 lb cans.....lb.	1.27	1.33
Powder, 25 lb tins.....lb.	1.32	1.38
Soln, USP, 25 lb tins...lb.	1.05	1.15
Hypophosphite, USP, 25 lb cans.....lb.	.60	.65
Iodide, USP, 25 lb jars...lb.	...	2.75
Phosphate (Mono-Sodium), 100 lb kegs.....lb.	.28	.29
Di-Sodium USP, granular, 275 lb bbls.....lb.	.07½	.08
Pyrophosphate, 100 lb kegs .....lb.	...	.29
Salicylate, 100 lb kegs....lb.	...	.47
Sulfocarbolate, USP, 100 lb kegs.....lb.	...	.25
Sulfocyanate, CP crys, jars included.....lb.	...	.60
Spartein Sulfate, USP, 25 oz bulk.....oz.	.65	.70
Single oz vial.....oz.	.77	.90
STRONTIUM BROMIDE USP, 50 lb kegs.....lb.	.46	.47
Carb, 100 lb kegs wks....lb.	...	.20
Iodide, USP, 25 lb jars....lb.	...	3.00
Lactate, kegs.....lb.	.90	1.10
Nitrate, 600 lb bbls NY...lb.	.08	.08½
Imp. bbls NY.....lb.	.08	.08½
Salicylate, USP, 100 lb keg lb.	...	1.10
Strophanthin, USP, 1 oz vial.oz.	19.00	19.00
Crystals.....lb.	75.00	75.00
Strychnine Alk, USP crys, 100 oz tins.....oz.	...	.37
Powdered.....oz.	...	.27
Acetate.....oz.	...	.65
Arsenate, 25 oz cans.....oz.	...	.65
Glycerophosphate, USP...oz.	...	.65
Hydrobromide.....oz.	...	.65
Hydrochloride.....oz.	...	.65
Hypophosphite.....oz.	...	.75
Nitrate, USP.....oz.	...	.60
Phosphate.....oz.	...	.65
Sulfate, USP, powd .....oz.	...	.24
Sugar, refined, 275 lb bbl 100 lb	5.80	5.90
Milk, USP, 200 lb bbls...lb.	.18	.20
Sulfonethylmethane, USP, 10 lb boxes.....lb.	3.85	4.05
Sulonmethane, USP, 10 lb box .....lb.	2.65	3.85
Sulfur flwrs. washed, USP, 125 lb bbl.....lb.	...	.06
Iodide, USP, VIII, 5 lb bot lb.	...	3.85
***TARTAR EMETIC,** USP, 300 lb bbls.....lb.*	.26	.28
Terebene, tins.....lb.	...	.85
Terpin Hydrate, USP, 100 lb kegs.....lb.	.30	.32
Theobromine Alk, 5 lb cans..lb.	1.70	1.90
Sod. Salicylate, 1 lb bot...lb.	...	2.10
Sod. Benzoate, 1 oz vials..oz.	...	1.00
Thymol, USP, 25 lb tins.....lb.	1.15	1.40
Iodide kegs.....lb.	...	3.80
Titanium Oxide, tons, bags, lb. 100 lb. kegs.....lb.	...	.18
Veratrine Alkaloid.....oz.	...	.19½
Sulfate, 1 oz vials.....oz.	...	2.25
Witch Hazel Ext., 50 gal bbl .....gal.	.60	.80
Zinc Carb, USP, 100 lb keg..lb.	.28	.31
Chloride, USP, 25 jars ex..lb.	.24	.29
Iodide, 5 lb bottles.....lb.	...	4.25
Oxide, USP, 100 lb bbls..lb.	.13	.14
Stearate, USP, 50 lb bbl..lb.	.15	.17
Sulfate, USP, 100 lb bbl..lb.	.08	.09
Sulfocarbolate, 100 lb kegs..lb.	.23	.26

Miscellaneous

Absorption Bases.....lb.	.60	.75
Castor Oil, odorless, bbls.....lb.	...	.12
Chalk drop, 175 lb. bbls.....lb.	...	.03½
Precip. light, 250 lb. cask..lb.	...	.04½
Heavy 540 lb. casks.....lb.	...	.04½
English light, bags.....lb.	...	.04½
English light, casks.....lb.	.05½	...
Cocoa Butter, fingers..... 12 lb. box.....lb.	.24	.25
Cod Liver Oil Nor. 30 gal. bbls	19.00	20.00
Newfoundland.....bbl.	21.00	22.00
Collodion U. S. P. 30 lb. dr...lb.	.13	.14
Colors certified; 1 lb. cans, 5 lb. cans		
Amaranth No. 107.....lb.	2.55	2.65
Brilliant Blue F.C.F.....lb.	13.00	13.50
Erythrosine No. 517.....lb.	17.00	17.50
Orange Ind. 85.....lb.	2.55	2.65
Ponceau 3R No. 56.....lb.	5.25	5.50
Tartrazine No. 94.....lb.	2.55	2.65
Corn Syrup 42° 50 gal. bbl. .....100 lb.	...	2.28
Gelatin, USP, Silver 100 lb. cases.....lb.	.49	.55
Pure Food, 50 lb. bbl.....lb.	.47	.49
Glucose, (grape sugar) dry 70° bags c-l NY.....100 lb.	3.14	3.24
Haarlem Oil, bot 6 gross cases .....gross	...	3.25
Imported, 5 gr. cs.....gross	...	3.35
Kaolin, Bags.....lb.	.05	.08
Colloidal Grade 200 lb. tin lined wooden drums....lb.	.10½	.12
Mineral Oil White, 50 gal. bbls. 80-85 vis.....gal.	.45	.50
85-90 vis.....gal.	.65	.70
125-130 vis.....gal.	.75	.85
290 vis.....gal.	.80	.90
Russian 80-85 vis.....gal.	.55	.60
110-115 vis.....gal.	.70	.75
145-155 vis.....gal.	.73	.78
180-185 vis.....gal.	.78	.83
335-345 vis.....gal.	.83	.88
Olive Oil, Edible bbls.....gal.	1.45	1.65
Paraffin Wax, fully refined, slabs 125 @ 127 A.M.P. bags lb	...	.03½
130 @ 132 A.M.P. bags lb.	...	.03¾
135 @ 137 A.M.P bags lb.	...	.04½
Petrolatum, Lily White, USP, 400 lb. bbl .....lb.	.07	.08
Snow White USP, 400 lb. bbls.....lb.	.08	.09
Rice Starch, 140 lb bags....lb.	.08	.09
Soap Castile, bars 40 lb. Case .....Cs.	...	12.75
Powd. USP 250 lb. bbls...lb.	.21	.23
Green, USP, 450 lb. bbls...lb.	.07½	.07½
Neutral, powd. 200 lb. bbls. lb.	.18	.20
Talc, Italian, 220 lb bags...ton.	55.00	75.00
French, 220 lb bags.....ton.	40.00	45.00
Turtle Oil, gal.....	3.50	5.00

Waxes, See Drugs & Spices

Aromatics and Essential Oils

Acetophenene, CP, 1 lb bot	lb.	3.50	3.65
Aldehyde, C 8 (Otcyl) 1 lb bot	lb.	30.00	35.00
C 7, 1 lb bot	lb.	4.50	5.50
C 9 (Nonyl), 1 lb bot	lb.	40.00	45.00
C 10 (Decyl), 1 lb bot	lb.	30.00	35.00
C 14, 1 lb bot	lb.	12.00	14.00
C 16, 1 lb bot	lb.	16.00	18.00
***AMYL ACETATE**, pure, 25 lb cans*	lb.	.43	.50
Butyrate, 1 lb bot	lb.	1.25	1.50
Butyrate, 5 lb bot	lb.	...	1.00
Cinnamate, 5 lb bot	lb.	9.50	9.75
Formate, 1 lb bot	lb.	...	1.75
Formate, 5 lb bot	lb.	...	1.60
Phenyl Acetate, 1 lb bot	lb.	4.50	5.00
Salicylate, 100 lb cbys	lb.	.65	.70
Anethol, 2 lb bot	lb.	.85	1.00
Anisic Aldehyde, 1 lb bot	lb.	3.10	3.60
Benzaldehyde, USP, 40 lb cbys	lb.	1.30	1.40
FFC, 40 lb cbys	lb.	1.35	1.45
Benzoic Ether, see Ethyl Benzoate			
Benzophenone, 1 lb bot	lb.	1.75	2.25
Benzyl Acetate, 100 lb cbys	lb.	.60	.80
Alcohol, 5 lb bot	lb.	.85	.95
BENZYL BENZOATE		1.10	1.15
Medicinal, FFC	lb.	...	1.40
Buytrate, CP, *1 lb bot*	lb.	9.25	9.50
Benzyl Cinnamate, 1¼ bot	lb.	7.00	7.25
Formate, 1 lb bot	lb.	3.15	3.25
Propionate, 1 lb bot	lb.	2.25	2.40
Succinate, 1 lb bot	lb.	5.25	5.50
Valerate, 5 lb bot	lb.	3.00	3.25
Borneol, 1 lb bot	lb.	1.35	1.85
Bornyl Acetate, 1 lb bot	lb.	1.50	2.60
Bromstyrol, 25 lb cases	lb.	3.75	3.85
Butyl Anthranilate dom, 1 lb bot	lb.		
Carvol, 5 lb bot	lb.	3.00	3.40
Cinnamic Acid, 5 lb cans	lb.	3.25	3.50
Alcohol liquid, 1 lb bot	lb.	2.50	2.60
Crystallizable	lb.	3.50	4.00
Aldehyde	lb.	2.25	2.50
Imported, 1 lb bot	lb.	7.75	9.00
Citral, 25 lb cans	lb.	1.65	3.00
Citronellol 1 lb bot	lb.	2.00	2.25
Citronelyl Acetate, 1 lb bot	lb.	3.50	3.75
Coumarin, 25 lb cans	lb.	3.25	3.50
DECYL ALCOHOL	lb.	22.00	25.00
Diphenyloxide, 25 lb tins	lb.	1.05	1.20
Diphenyl Methane	lb.	1.75	2.00
Duodecyl Alcohol	lb.	24.00	26.00
Ethyl Acetate, pure, 5 lb bot	lb.	.05½	.06½
Benzoate, 5 lb bot	lb.	1.25	1.50
Ethyl Butyrate, 5 lb bot	lb.	1.80	2.00
Caproate, *1 lb bot*	lb.	3.25	3.50
Cinnamate, 1 lb bot	lb.	4.00	4.50
Formate, 5 lb bot	lb.	1.00	1.25
Methyl Paracresol, 1 lb bot	lb.	3.25	3.50
Phenyl Acetate, 5 lb bot	lb.	3.75	4.00
Valerate, *5 lb bot*	lb.	...	3.75
Salicylate, 5 lb bot	lb.	1.95	2.00
Eucalyptol, USP, 50 lb cans	lb.	.55	.60
Eugenol, USP, 25 lb cans	lb.	2.00	2.50
Geraniol, 50 lb cases	lb.	1.75	2.35
Geranyl Acetate, 1 lb bot	lb.	2.75	2.80
Butyrate, 1 lb bot	lb.	13.00	13.50
Formate, 1 lb bot	lb.	12.00	12.50
Heliotropin, 100-10 lbs	lb.	1.65	1.75
Imported	lb.	1.95	2.05
Hydroxycitronellal, 1 lb	lb.	2.75	3.85
Indol, CP, 1 oz bot	oz.	2.90	3.00
IONONE, 1 lb bot 100%	lb.	4.00	4.50
Alpha	lb.	5.75	6.00
Beta	lb.	4.50	5.00
Methyl	lb.	5.00	5.25
Iso Borneol	lb.	2.25	2.35
Iso Bornyl Acetate	lb.	3.00	3.20
Iso-Butyl Benzoate, 5 lb bot	lb.	2.75	3.00
Iso-Eugenol, 1 lb bot	lb.	2.85	2.90
Iso-Safrol, 1 lb bot imp	lb.	1.75	1.85
Domestic, 5 lb bot	lb.	3.50	3.75
Linalol from Bois de Rose, 5 lb bot	lb.	1.65	3.50
Linalyl Acetate, 1 lb bot	lb.	2.25	2.35
Benzoate, *1 lb bot*	lb.	13.00	14.00
Formate, *5 lb bot*	lb.	10.50	12.00
METHYL ACETOPHENONE	lb.	2.00	2.15
Anthranilate, 1 lb bot	lb.	2.10	2.20
Imported	lb.	2.70	2.75
Benzoate, 5 lb bot imp	lb.	1.25	1.35
Domestic, 5 lb bot	lb.	1.25	1.35
Cinnamate, 1 lb bot	lb.	3.35	3.85
Heptenone, 1 lb bot	lb.	3.50	4.00
Paracresol, 1 lb bot	lb.	4.50	8.00
Phenylacetate, 5 lb bot	lb.	2.50	2.75
Salicylate, USP, 500 lb dr	lb.	...	.40
50 lb cases	lb.	...	.42
Mirbane rect, 1,000 lb drs	lb.	.12	.13
Musk Ambrette 1 lb cans	lb	6.00	6.25
Ketone 1 lb cans	lb	7.55	7.80
Xylene 5 lb cans	lb.	2.25	2.85
Nerolin 1 lb cans	lb.	1.35	1.40
Octyl Alcohol 1 lb bot	lb.	18.00	20.00
Oenanthic Ether lb bot	lb.	1.90	2.00
Oleoresin Aspidum			
USP, bot and tins	lb.	...	1.25
Capsicum, USP, bot and tins	lb.	1.90	2.15
Cubeb, USP, bot and tins	lb.	2.30	2.60
Ginger bot and tins	lb.	2.20	2.50
Malefern see Aspidum			
Orris, bot & tins	lb.	12.00	15.00
Pepper, black, USP, bot & tin		...	9.50
Vanilla, bot & tins	lb.	4.50	5.25
Paracresol Methyl Ether	lb.	4.25	4.50
Paracresyl Acetate	lb.	5.50	5.75
Para Cymene Refd 110 gal dr	gal.	2.25	2.50
PHENYLACETALDEHYDE 50% 1 lb bot	lb.	4.50	4.75
Imported 50%	lb.	4.50	4.75
100%	lb.	8.00	8.25
Phenylacetic Acid 1 lb bot	lb.	2.65	2.90
Phenyl Diacetate 1 oz bot	oz.	3.00	3.25
1 lb bot	lb.	8.00	10.00
Imported	lb.	7.00	7.75
Phenylethyl Alcohol 1 lb bot	lb.	3.75	4.00
Phenyl Ethyl Acetate	lb.	8.25	8.75
Butyrate 1 lb bot	lb.	15.00	16.00
Formate, 1 lb bot	lb.	19.00	21.00
Propionate, 1 lb bot	lb.	10.00	12.00
Valerate, 1 lb bot	lb.	14.00	15.00
Phenylpropylalcohol, 1 lb bot	lb.	8.50	9.00
Rhodinol, 1 lb bot	lb.	12.00	15.00
Skatol, 1 oz bot	lb.	4.50	7.00
Terpinyl Acetate, 25 lb cans	lb.	.85	.90
Imported, 25 lb cans		.85	.90
TERPINEOL, CP, 1000 lb drs	lb.	.29	.30
50 lb cans	lb.	.31	.33
Absolute, 25 lb cans	lb.	.48	.50
TOLYL ALDEHYDE, F.F.C. *40 lb. carboys*	lb	2.10	2.25
Valerianic Ether see Ethyl Valerate			
Vanillin (Clove Oil), USP	lb.	5.50	5.75
(Guaiacol) USP	lb.	5.00	5.25

Essential Oils

Almond Bitter, USP, 5 lb bot	lb.	2.00	2.10
Bitter, ffPA, *5 lb bot*	lb.	2.10	2.20
Sweet, 56 lb cans	lb.	.42	.46
Almond Meal, 25 lb cans	lb.	.18	.19
Amber crude, 25 lb tins	lb.	.16	.18
Rectified, 25 lb tins	lb.	.50	.53
Amber liquid, 400 lb drs	lb.	2.20	2.30
Ambergris, Black, boxes	oz.	14.00	15.00
Gray boxes	oz.	25.00	30.00
Angelica Root, 1 lb bot	lb.	19.00	29.00
Anise Tech, 400 lb drums	lb.	.29	.31
USP, 60 lb cans	lb.	.31	.33
Apricot Kernel, 50 lb cans	lb.	.22	.23
Bay, 25 lb tins N. F. V., 50.55% *Phenol*	lb.	1.50	1.65
Terpeneless	lb.	4.25	4.45
BERGAMOT, 25 lb coppers	lb.	1.20	1.75
Terpeneless	lb.	6.25	8.00
Artificial, 25 lb cans	lb.	1.00	1.40
Birch, Sweet, Northern, 25 lb tins	lb.	3.00	3.10
Southern, 25 lb tins	lb.	...	1.85
Birch Tar, rect., 5 lb bot	lb.	.50	.55
Crude, 50 lb tins	lb.	.13	.14
Bois de Rose, tins			
Brazilian	lb.	.90	1.05
Cayenne, tins	lb.	1.90	2.10
Cade, 25 lb cans	lb.	.24	.25
Cajuput, native, 50 lb tins	lb.	.45	.57
Calamus, 5 lb bot	lb.	2.75	3.00
Camphor Sassa, 1000 lb drs	lb.	.10	.12
White, 400 lb drs	lb.	.13	.15
Cans, 50 lbs	lb.	.15	.17
CANANGA, Native 25 lb tins	lb.	1.60	1.75
Rectified, 25 lb tins	lb.	2.05	2.20
Caraway, USP	lb.	1.40	1.50
Cardamon, NF, 1 lb bot	lb.	14.00	15.00
Cascarilla, 1 lb bot	lb.	56.00	70.00
Cassia,			
Redist, USP, 50 lb cans	lb.	.90	.95
Cedar Leaf, 50 lb tins		.50	.55
Cedar Wood, light, 1000 lb drs	lb.	.25	.30
Celery, 1 lb bot	lb.	8.50	10.00
Chaulmoogra, USP 80 lb cases	lb.	...	1.50
Cinnamom Ceylon, 1 lb bot	lb.	8.00	10.00
Leaf, 5 lb bot	lb.	1.85	1.95
CITRONELLA Ceylon, 1000 lb drs	lb.	.37	.38
50 lb tins	lb.	.39	.40
Java, 400 lb drs	lb.	.45	.50
50 lb tins	lb.	.47	.53
Civet, Abyssin, horns	oz.	2.10	3.00
Cloves, USP, 50 lb cans	lb.	.75	.80
6 lb bot	lb.	.80	.85
Copaiba	lb.	.45	.50
Coriander, USP, 10 lb bots	lb.	3.90	4.15
Croton USP, 25 lb tins	lb.	2.00	2.25
Cubebs, USP, 5 lb bot	lb.	2.40	2.60
Cumin, 1 lb bot	lb.	7.00	7.50
Dill, 25 lb cans	lb.	3.00	5.25
Erigeron, 20 lb tins	lb.	.95	1.05
EUCALYPTUS Austl, USP, 56 lb cans, cases	lb.	.22	.24
500 lb drs	lb.	.20	.21
Fennel, USP, 25 lb tins	lb.	1.00	1.25
Geranium African, 25 lb tins	lb.	4.25	5.00
Bourbon, 28 lb tins	lb.	4.25	4.75
Turkish, 28 lb tins	lb.	1.65	1.85
Ginger, 1 lb bot	lb.	3.00	3.25
Gingergrass, 28 lb tins	lb.	2.50	2.70
Grape Fruit	lb.	2.75	2.85
Hemlock, 25 lb tins	lb.	.75	.90
Juniper Berries, USP, 25 lb tins	lb.	1.15	1.95
Wood, 50 lb tins	lb.	.50	.60
Labdanum, 5 lb bot	lb.	5.50	6.00
LAVENDER, USP, 28 lb tins	lb	1.40	2.00
Spike Spanish, 50 lb cans	lb.	.48	.65
Lemon Ital, 25 lb cans	lb.	.75	1.05
California 35 lb cbys	lb.	...	.65
Lemongrass, native, 50 lb cans	lb.	.42	.45
Limes, expressed, 25 lb tins	lb.	10.00	12.50
Distilled, 25 lb tins	lb.	6.75	7.25
Linaloe Mex., 70 lb cases	lb.	...	1.40
Mace, distilled, 50 lb tins	lb	.80	.85
Mandarin, 25 lb cases	lb.	3.75	4.00
Musk Pods Cabardine, tins	lb.		
Musk Tonquin, tins, Pods	oz.	18.00	20.00
Tonquin, tins, Grained	oz.	20.00	22.00
***MUSTARD**, USP, 1 lb bots*	lb.	8.50	9.00
Artif, USP, 5 lb bot	lb.	1.50	1.60
Neroli Bigarade, ¼ & ½ & 1 lb bot	lb.	75.00	105.00
Petale, 1 lb bot	lb.	95.00	105.00
Artificial, 1 lb bot	lb.	5.00	15.00
Nutmeg, USP, 50 lb tins	lb	.85	.90
ORANGE BITTER, 25 lb tins	lb	1.10	1.50
Sweet W Ind, 25 lb tins	lb	1.05	1.25
Italian, 25 lb cop	lb	1.00	1.25
Orange American, Cold pressed 25 lb tins	lb.	...	.70
Distilled, 25 lb tins	lb.	...	.40
Spanish, 25 lb tins	lb.	...	1.20
Oil Orris, concrete	oz.	4.00	4.25
Origanum, 50 lb cans tech	lb.	.25	.27
Parsley, 1 lb bot	lb.	6.50	6.75
Patchouli, 5 lb bot	lb.	3.25	4.00
Pennyroyal, dom, 25 lb tins	lb.	1.65	1.75
Imported, *25 lb tins*	lb.	...	1.25
Pepper Black lb			6.00
Peppermint, nat. 60 lb cases	lb.	1.90	2.00
Redis, USP, 60 lb cs	lb.	2.05	2.15
Petit Grain S A., 25 lb tins	lb.	.90	.95
French, 1 lb bot	lb.	4.50	4.75
Italian, 25 lb tins	lb.	2.20	2.30
Pimento Leaf, 25 lb tins	lb.	1.15	1.30
Berries, 25 lb tins	lb	3.00	3.10
Pine Needle Siberian, cans	lb.	.80	1.00
Pinus, Sylvestris, 25 lb tins	lb.	1.30	2.00
Pumilio, USP, 25 lb tins	lb.	1.85	1.90
Rose Fr, 8, 16, & 32 oz pkgs	lb.	14.00	17.00
Bulg, 8, 10 & 32 oz pkgs	oz.	6.00	17.00
Rosemary, USP, 27½ lb tins	lb.	.34	.40
1000 lb drums	lb.	.32	.38
Tech, 25½ lb tins	lb.	.26	.28
Rue, 1 lb bot	lb.	2.00	2.25
SANDALWOOD, E Ind, USP, 100 lb case	lb.	5.00	6.50
W Indian (Amyris), 25 lb tins	lb.	2.85	2.95
Australian, Tins		2.95	3.25
Sassafras, USP, *50 lb cans*	lb.	.60	.90
Artificial, 1000 lb drs, 60 lb cans	lb.	.18	.20
Safrol, cans	lb.	.24	.26
Sage, Dalmatian, 25 lb. cans	lb.	2.00	2.10
Savin, 50 lb tins	lb.	1.85	2.00
Snakeroot, Canada	lb.	8.25	8.50
SPEARMINT, USP, 50 lb tins	lb	.90	1.10
Spruce, 50 lb tins	lb	.70	.75
Tansy, American, 25 lb cans	lb.	1.70	1.90
Tar, 50 gal bbls	lb.	.25	.30
USP, 50 gal bbls	lb.	.75	1.50
Thyme, red, NF, 25 lb tins	lb.	.60	.75
White, NF, 25 lb tins	lb.	.65	.80
Tech, 110 lb drums	lb.	.50	.55
Turpentine, USP, rect cbys	lb.	.27	.30
Vetivert Bourbon, 10 bot	lb.	4.00	4.25
Indian, 1 lb bot	lb.	25.00	38.00
Java, 1 lb bot	lb.	12.00	13.00
Wine, heavy, 1 lb bot	lb.	1.50	1.60
WINTERGREEN Gaultheria, true, 25 lb tin	lb.	8.00	10.00
Southern, 25 lb tins	lb.	3.75	4.00
Synthetic see Methyl salicylate			
Wormseed, Balt, 25 lb tins	lb.	1.85	2.15
Wormwood, dom, 25 lb tins	lb.	2.25	2.75
Ylang Ylang Bourbon, 10 lb tins No. 1	lb.	4.00	4.25
10 lb tins No. 2	lb.	3.00	3.50
Manila, 1 lb bot	lb.	22.00	27.00

Drugs and Spices

Aconite Root, USP, bags....lb.	.12	.13
Agar Agar, No. 1, bales....lb.	.40	.43
Agar Agar No. 2, bales....lb.	.35	.38
Aletris Root, bags....lb.	.16	.18
Alkanet Root, bags....lb.	.09	.10
ALOES, Cape, 400 lb cases. lb.	.09	.10
Curacao, 140 lb cases....lb.	.10	.11
Socotrine, Whole, 300 lb cs lb.	.28	.32
Althea Root, bags....lb.	.14	.16
Cut cases....lb.	.15	.16
Angelica Root, bags....lb.	.11	.12
Angostura Bark, bags....lb	.18	.19
Anise Star case....lb	.09	.10
Spanish, bags....lb	.10	.11
ARABIC GUM, White, No. 1, 220 lb bags....lb.	.14	.15
Seconds, 220 lb bags....lb.	.13	.14
Sorts, Amber, 220 lb bags..lb.	.06	.06½
Powd, USP, 300 lb bbls....lb.	.10	.13
Areca Nuts, 100 lb bbls....lb.	.05	.07
Powd, 100 lb bbls....lb.	.10	.11
Arnica Flowers, bales....lb.	.10	.11
Root, bags....lb.	.40	.41
Arrowroot, St. Vincent, powd bbls....lb.	.08	.09
Asafoetida, 250 lb cases....lb.	.16	.17
Powd, 50 lb boxes....lb.	.32	.35
Balm Gilead Buds, bags....lb.	.20	.21
Balmony Herbs, bales....lb.	.10	.12
BALSAM COPAIBA Para, 80 lb cases....lb.	.16	.17
South American, USP, 80 lb cases....lb.	.18	.22
Peru, 120 lb cases....lb.	.85	.90
Tolu, 90 lb cases....lb.	.72	.82
Barberry Bark, of root, bags lb.	.15	.17
Bayberry Bark, bales....lb.	.07	.08
Wax bbls....lb.	.13	.15
Bees Wax, White, cases....lb.	.28	.32
Yellow refined cases....lb.	.21	.24
Yellow Crude Bags....lb.	.14½	.18
BELLADONNA LEAVES, bale ....lb.	.10	.12
Root, bags....lb.	.11	.12
Benzoin Gum, Siam, boxes..lb.	1.05	1.30
Sumatra, cases....lb.	.18	.20
Berberis Aquafolium Root, bags ....lb.	.08	.09
Beth Root, bags....lb.	.08	.09
Black Indian Hemp Root, 100 lb bags....lb.	.10	.11
Blood Root, bags....lb.	.10	.11
Blueflag Root, bags....lb.	.12	.13
Boldo Leaves, bales....lb.	.12	.14
Boneset Herb, bales....lb.	.08	.09
Borage Flowers, bales....lb.	.17	.19
Broomtop Herb Cut, bales..lb.	.08	.09
Bryonia Root, bags....lb.	.09	.10
BUCHU LEAVES Short, 250 lb. bales....lb.	.18	.19
Long bales....lb.	.75	.80
Buckbean Leaves, bales....lb.	.08½	.09
Buckthorn Bark, bags....lb.	.05	.06
Berries, bags....lb.	.29	.34
Burdock Root, bags....lb.	.07	.08
Seed bags....lb.	.30	...
Burgundy Pitch, 110 stand gross for net....lb.	.08	.09
Imported....lb.	.10	.11
Calabar Beans, bags....lb.	.15	.16
Calamus Root, blchd cases..lb.	.23	.25
Unbleached, bags....lb.	.07	.08
Calendula Petals, imp bales..lb.	.45	.48
Calisaya Bark, bales....lb.	.17	.18
Powdered, bbls....lb.	.22	.23
Canary Seed, South America, bags....lb.	.03½	.04
Morocco....lb.	.03½	.04½
Turkish....lb.	.03½	.04½
Candelilla Wax, bags....lb.	.09½	.11
Cannella Alba Bark, bales...lb.	.25	.26
Cannabis, U.S.P....lb	.16	.23
Cantharides, Chinese, cases..lb.	1.00	1.05
Powdered, boxes....lb.	1.15	1.25
Russian, cases....lb.	No stocks	
Powdered, boxes....lb.	No stocks	
Caraway Seed, African, bags ....lb.	No stocks	
Dutch, 11 lb bags....lb.	.07	.07½
Cardamon bleached, cases...lb.	.75	1.05
Decorticated, cases....lb.	.50	.52
Carnauba Wax No. 1, 100 lb. bags....lb.	.22	.23
Cascara Amarga, 150 lb bbls.lb.	1.25	1.30
So called bales....lb.	.25	.30
CASCARA SAGRADA, 1931 bark....lb.	.11	.12
1932 bark....lb.	.10	.11
New crop....lb.	.09	.10
Cascarilla Bark, quills, bales .lb.	.65	.70
Siftings, bbls....lb.	.50	...
Cassia Batavia No. 1 bbls....lb.	.07½	.07¾
Shortstick, bales....lb.	.06	.06½
Batavia No. 3, bales....lb.	.06½	.07
China Select Rolls, cases..lb.	.02¾	.03¼
Broken, bales....lb.	.05½	.05¾
Saigon, thin....lb.	.19½	.20
Buds, cases....lb.	.17	.18
Fistula, baskets....lb.	.07½	.09
Catnip, Herb, bales....lb.	.15	.16
Celery Seed, bales....lb.	.36½	.37
Ceresin Wax, White, bags...lb.	.10	.15
Yellow 200 lb. bags....lb.	.09	.12
Imp white 100 lb. bags.lb.	.21	.38
CHAMOMILE FLOWERS Roman, bales....lb.	.30	.35
Hungarian, cases....lb.	.14	.15
Charcoal Willow, powd, bbls.lb.	06	.06½
Wood, powd, bbls....lb.	.04	.05
Chestnut Bark....lb.	.07	.08
Leaves bales....lb.	.05	.06
Chicle Gum, 200 lb. bales...lb.	.27	.30
Chiretta, bales....lb.	.12	.15
Cinnamon, Ceylon, No. 1, bales ....lb.	.12	.14
No. 2 bales....lb.	.09½	.10
No. 3 bales....lb.	.11½	.12
Clover Tops, Red, bags....lb.	.10	.12
Cloves Zanzibar, 135 lb bbl...lb.	.09	.09½
Cochineal, Black....lb.	.51	...
Silver....lb.	.45	...
Cohosh Root, Black, bags...lb.	.05	.06
Blue, bags....lb.	.06	.07
Colchicum Root, bags....lb.	.11	.13
Seed, bags....lb.	.60	.65
COLOMBO ROOT, bags...lb.	.05	.06
Colocynth Pulp, bales....lb.	.12	.13
Coltsfoot Leaves, bags....lb.	.06	.07
Comfrey Root, bags....lb.	.11	.12
Condurango Bark, bags....lb.	.09	.10
Coriander Seed, Morocco, bags ....lb.	.06	.07
Bleached, bags....lb.	.08	.09
Corn Silk, bales....lb.	.05½	.06½
Cotton Root Bark, bales...lb.	.06	.07
Cowhage, 1 oz tins....lb.	1.00	...
Cramp Bark so called bales..lb.	.06	.07
True, bags....lb.	.25	.27
Cranesbill Root, bags....lb.	.08	.09
CUBEB BERRIES, XX bags ....lb.	.30	.31
Powdered, boxes....lb	.32	.33
Culvers Root, bags....lb.	.12	.13
Cumin Seed, Malta, bags....lb.	.09	.09½
Morocco, bags....lb.	.09½	.10
Cuttlefish, Bone Trieste, Straps ....lb.	.19	.22
French, boxes....lb.	.18	.21
Powdered, bbls....lb.	.09	.10
Broken, bales....lb.	.07	...
Damiana Leaves, bales....lb.	.15	.16
Dandelion Root, Imp. bags..lb.	.10	.11
Deer Tongue Leaves, bales...lb.	.07	.09
Digitalis Leaves, bales....lb.	.20	.25
Dogwood Bark, Jamaica bags ....lb.	.07	.08
American bales....lb.	.06½	...
Doggrass Root, USP, cut bags ....lb.	.11	.12
Dragons Blood Mass, cases..lb.	.80	.85
Reeds, boxes....lb.	.85	.90
Echinacea Root, bags....lb.	.15	.16
Elcampane Root, bags....lb.	.05½	.06½
Elder Flowers, bags....lb.	.13	.14
Elemi Gum, 85 lb cases....lb.	.09½	.10
Elm Bark, bundles....lb.	.14	.17
Grinding bags....lb.	.08	.09
Powdered, bbls....lb.	.13	.16
Ephedra Vulgaris, bales....lb.	.05	.06
ERGOT, 150-200 lb bags....lb.	.32	.45
Eucalyptus Leaves, bales....lb.	.05	.06
Euphorbia Pilulifera, Herb, bags....lb	.05	.08
Euphorbium Gum, cases....lb.	.14	.20
Fennel Seed, French, bags...lb.	.06½	.07
German bags....lb.	.08	.09
Foenugreek Seed, 200 lb bags ....lb.	.04	.04½
Fish Berries, 100-125 lb bag..lb.	.13	.15
Flax Seed, Whole 182 lb bbls.lb.	.05½	.06½
Ground, 180 lb bbls....lb.	.06	.07½
Fringe Tree Bark or Root bags ....lb.	.10	.12
Fumigating Pastiles, boxes..lb.	.28	.30
Galangal Root, bags....lb.	.08	.09
Galbanum Gum, cans....lb.	.85	.90
Gamboge Gum, 100 lb cases..lb.	.50	.55
Powdered, cases....lb.	.65	.70
Gelsemium Root, bags....lb.	.07	.08
GENTIAN ROOT, bags....lb.	.16	.17
Ground bbls, boxes....lb.	.18	.19
Powdered, bbls, boxes....lb.	.19	.20
Ginger, African, bags....lb.	.05½	.06½
Jamaica Grinding bags....lb.	.10	.12
Cochin ABC & Lemon, bags ....lb.	.07½	.07¾
Ginseng Root, cultivated cs..lb.	8.00	10.00
Wild Southern, cases....lb.	11.00	13.00
Golden Seal Root, bags....lb.	.65	.70
Powdered, boxes....lb.	.90	1.00
Herb, barrels....lb.	.35	.40
Grains of Paradise, bags....lb.	.09	.11
Grindelia Robusta, Herb, bale ....lb.	.07	.08
Guaiac Gum, 150 lb cases....lb.	.20	.22
Strained 75 lb cases...lb.	.70	.75
Guarana, tin cases....lb.	.50	.55
Hellebore Root, Black, bbls. lb.	.05½	.06
White, 250 lb bbls....lb.	.07	.08
Powdered....lb.	.10	.11
Helonias Root, bags....lb.	.25	.27
Hemp Seed, bags....lb.	.02½	.03
Henbane Leaves, USP, bales.lb.	.07	.08
HENNA LEAVES, bales....lb.	.07	.08
Powdered....lb.	.08	.13
Hops, bales....lb.	.37	.42
Horehound, Herb, bales....lb.	.06½	.07
Hydrangea Root, bales....lb.	.06	.07
IPECAC ROOT, Cartagena, bags....lb.	.75	.80
Powdered, 220 lb bbls...lb.	.85	.90
Nicaraugua, 125 lb. bags lb.	.60	.65
Isinglass, American, 130 lb cases ....lb.	.95	1.00
Russian (Beluga), boxes...lb.	4.50	...
Jaborandi Leaves, bales....lb.	.10	.11
Jalap Root, Whole, 150 lb bag....lb.	.15	.16
USP, Powd, 250 lb bbls....lb.	.19	.20
Japan Wax 224 lb. cases....lb.	.05½	.07
JUNIPER BERRIES, 125 lb bags....lb.	.05	.05½
Kamala, boxes....lb.	.20	.22
Karaya Gum, No. 1 Powdered, bbls....lb.	.11	.11½
Kava Kava Root, bags....lb.	.13	.14
Kino Gum, Black, cases....lb.	.50	.55
Kola Nuts, 150 lb bags....lb.	.05½	.06
Lady Slipper Root, bags...lb.	.28	.30
Larkspur Seed, bags....lb.	.25	.27
Laurel Berries, bags....lb.	.08	.09
Leaves, Greek, bags....lb.	.05	.06
Italian, bales....lb.	No stocks	
Lavender Flowers, Ordinary..lb.	.16	.20
Selected....lb.	.28	.30
Lemon Peel, bags....lb.	.08½	.09
LICORICE ROOT, Whole bbls ....lb.	.12	.15
Spanish Natural bales....lb.	.05½	.07
Powdered, bbls....lb.	.08	.10
Selected Cases....lb.	.12	.15
Cutting, 125 lb bags....ln.	.06	.06½
Turkish, 150 lb bales....lb.	.05	...
Linden Flowers with leaves, bales....lb.	.14	.15
Without leaves, bales...lb.	.15	.16
Liverwort Leaves, bales....lb.	.13	.14
Lobelia, Herb, bales....lb.	.18	.20
Seed, bags....lb.	.21	.26
Lovage Root, Imp., bags....lb.	.15	.17
Lupulin N. F., tins....lb.	1.20	1.65
Lycopodium, 88 lb. cases....lb.	.21	.23
MACE SIAUW, No. 1, cases ....lb.	.28	.29
Banda No. 1, cases....lb.	.35	.36
Batavia No. 2, cases....lb.	.31	.32
Malva Flowers, Blue, bales..lb.	.55	.60
Black, bales....lb.	.18	.33
Leaves, bales....lb.	.12	.13
Manaca Root, bales....lb.	.18	.19
Manna, Large Flake, cases...lb.	.40	.45
Small Flake, cakes....lb.	.25	.30
Sorts, cascs....lb.	.45	.50
Mandrake Root, bags....lb.	.08	.09
Marjoram, Herb....lb.	.19	.20
French, No. 1 bales....lb.	.16	.17
German, bales....lb.	.20½	.27
Mastic Gum, 120 lb. cases..lb.	.19	.21
Matico Leaves, bales....lb.	.15	.16
Mezereon Bark, bags....lb.	.02¼	.03
Millet Seed, Yellow, bags...lb.	.04	.04½
Montan Wax, Crude, bags..lb.	.25	.27
Bleached, pure. bags....lb.	.09	.11
Moss, Iceland, bales....lb.	.10	.12
Irish, Bleached, bales....lb.	.90	.95
Mullein Flowers, tins....lb.	.07	.07½
Leaves, bales....lb.	.06	.07
Musk Root, Russian, bags...lb.	.20	.22
Myrrh Gum, 200 lb, cases...lb.	.22	...
Nutgalls, Chinese, bags....lb.	...	.20
Aleppy, bags....lb.	.13	.15
Powdered, bags....lb.	.11	.12
Nutmegs, 110's cases....lb.	.12½	.13
75's & 80's cases....lb.	.18	.19
Grinding, bags....lb	.05	.06
NUX-VOMICA Buttons, bag ....lb.	.08	.09
Powdered, 200 lb bbls..lb.	.05½	.06
Oak Bark, bags....lb.	.05	.05½
Olibanum Gum, 280 lb cases Siftings....lb.	.19	.21
Tears, No. 1 Extra....lb.	.13	.15
No. 2....lb.	.09	.10
No. 3....lb.	10.00	11.00
Opium Gum, USP, cases....lb.	11.00	12.00
Granular, cans....lb.	11.00	12.00
Powdered, USP, cans....lb.	.25	.30
Orange Flowers, cases....lb.	.07½	.08
Peel, Bitter, bags....lb.	.06½	.07
Sweet bags....lb.	.08	.09
ORRIS ROOT, Flor. bid. bags ....lb.	.08	.09
Powdered, 200 lb bbls..lb.	.12	.13
Verona, bags....lb.	.06	.07
Powdered, 200 lb bbls..lb.	.10	.11
Fingers, boxes....lb.	.80	.85
Ozokerite Wax, Brown, Hard lb.	...	...
Bags....lb.	.24	.25
Green, Hard, bags....lb.	.25	.27
Yellow, Refined, bags....lb.	.20	.25
Papain, Crude, 150 lb cases..lb.	1.40	1.45
Pure, Powdered, 10 lb bot..lb.	1.50	1.55
Paprika, bags....lb.	.20	.23
Pareira Brava Root, bags....lb.	.16	.18
Passion Flower, bales....lb	.04½	.05½
Patchouli Leaves, bales....lb.	.15	.16
Pennyroyal, Herb, 100 lb bags ....lb.	.08	.09
Leaves, 100 lb bags....lb.	.11	.12

Drugs and Spices

PEPPERMINT LEAVES, Imp bales	lb.	.30 .50
Domestic, bales	lb.	.18 .20
Pichi Leaves, bags	lb	.08 .09
Pimento Select, bags	lb.	.04½ .05
Pink Root, True, bags	lb.	.25 .27
Pleurisy Root, bags	lb.	.13 .14
Poke Berries, bags	lb.	.15 .16
Root, 200 lb bales	lb.	.05½ .06
Pomegrant Bark of Root, bags	lb.	.25 .28
Bark of Fruit, bags	lb.	.15 .20
Bark of Tree, bags	lb.	.15 .17
POPPY FLOWERS, Red, bags	lb.	.40 .45
Prickly Ash Bark	lb.	.12 .15
Southern bags	lb.	.11 .11½
Northern, bags	lb.	.12 .13
Berries, bags	lb.	.20 .21
Prince's Pine, bales	lb.	.15 .20
Psyllium Seed, Black, bags	lb.	.09 .11
Plantago Seed, Blonde, Bags	lb.	.05 .07
Pulsatilla, Herb, bags	lb.	.10 .11
Pumpkin Seed, bags	lb.	.11 .12
Pyrethrum Flowers	lb.	.15 .16
Pwd., pure, 200 lb.bbls.	lb.	.19 .20
Quassia Chips, bags	lb.	.05 .06
Quebracho, bulk, 125 lb. bbl.	lb.	.20 .21
Quince Seed, Spanish bags	lb.	.75 .80
Persian, bags	lb	.90 .95
Rape Seed, South American, bags	lb.	No stocks
Dutch, bags	lb.	.05 .05½
Raspberries, Dried, bbls	lb.	.25 .30
Red Saunders, bags	lb.	.08 .09
Rhatany Root, bags	lb.	.11 .12
Rhubarb Root, HD, cases	lb.	.17 .18
Powdered, bbls	lb	.22 .23
Rosemary Leaves, bales	lb.	.05 .05½
Flowers, cases, bales	lb.	.28 .32
Rose Petals, pale	lb.	.13 .14
Red	lb.	.45 .50
Rue, Herb, bales	lb.	.18 .20
Sabadilla Seed, bags	lb.	.13 .14
Powdered, bbls	lb.	.15 .17
SAFFRON FLOWERS, American, bales	lb.	.16 .18
Valencia, 1 lb cans	lb.	10.00 11.00
Sage Dalmatian, bales	lb.	.04½ .05½
Sandarac Gum, 300 lb bbls.	lb.	.20½ .22
Sarsaparilla Root, Honduras, bales	lb.	.55 .60
Mexican, bales	lb.	.12 .13
Sassafras Bark, Ordinary, bales	lb.	.08 .10
Select, bales	lb.	.12 .15
Savory Leaves, bale	lb.	.05½ .06½
Saw Palmetto Berries, bags	lb.	.07 .08
Scammony Resin, boxes	lb.	1.30 1.35
Root, bags	lb.	.06 .07
Senega Root, bags	lb.	.35 .40
SENNA ALEX., 150 lb cases	lb.	.20 .25
Half leaf 150 lb bales	lb.	.08 .10
Sifting, 400 lb bales	lb.	.08 .09
Tinnevelly, Bold, 350 lb bales	lb.	.09 .11
Medium Leaf	lb.	.07½ .08½
Small Leaf	lb.	.06 .08
Pods, 350 lb	lb.	.08 .09
Powdered, 200 lb	lb.	.08 .09
Serpentaria Root, bags	lb.	.32 .33
Simaruba Bark, bales	lb.	.24 .26
Skullcap Leaves, Eastern, bales	lb.	.25 .30
Western, bales	lb.	.14 .24
Skunk Cabbage, Natural, bales	lb.	.13 .15
Snake Root, Canada Natural, bags	lb.	.16 .18
Canada, Stripped, bags	lb.	.40 .45
Soap Bark	lb.	.08 .09
Cut, 125-175 lb bags	lb.	.05 .06
Crushed, 200 lb bbls.	lb.	.15 ...
Powdered, bbls	lb.	.09 .10
Spearmint Leaves, American, bales	lb.	.16 .17
Spermaceti, blocks, cakes, cases	lb.	.18 .20
Bulk	lb.	.17 .19
Spikenard Root, bags	lb.	.07 .08
Squaw Vine, bales	lb.	.11 .12
Squills, White, tested	lb.	.05 .07
Powdered, bulk	lb.	.13 .15
Stavesacre Seed, bags	lb.	.13 .14
Stillingia Root, bags	lb.	.06 .07
Stone Root, bags	lb.	.07 .08
St. Ignatius Beans, bags	lb.	... .90
St. John's Bread, bags	lb.	... .06
STRAMONIUM LEAVES, bales	lb.	.10 .11
Seed, bags	lb.	.07½ ...
Strophanthus Seed, Kombe, bags	lb.	1.50 1.70
Styrax Liquid, Artificial	lb.	.26 .35
Genuine, USP	lb.	.38 .43
Sunflower Seed, bags Calif.	lb.	.05 .06
South American, bags	lb.	No stocks
Tamarinds, bbls	lb.	.05½ .06½
Kegs	keg	3.75 3.85
Tansy, Herb, bales	lb.	.12 .13
Thus Gum, 450 lb bbls	lb.	.05½ .06½
THYME, Spanish, bales	lb.	.06 .07
French, bales	lb.	.07 .08
Tonga Root	lb.	.22 .25
Bark, bundles	lb.	.22 .25
Tonka Beans, Angostura Cases		1.40 1.50
Para cases	lb.	.60 .70
Surinam cases	lb.	.65 .75
Tragacanth Gum, No 1, 100 lb. cases	lb.	.65 .70
No. 2	lb.	.52 .57
No. 3	lb.	.42 .47
Powdered, 50 lb boxes	lb.	.60 .65
Turkish cases	lb.	.40 .60
Turmeric Root Madras, bags.	lb.	.06 .06½
Aleppy bags	lb.	.05½ .06
Powdered	lb.	.10 .12
China bags	lb.	.11 .12
Turpentine Venice True, 80 lb cases	lb.	.30 .38
Artificial, 80 lb cases	lb.	.15 .16
Uva Ursi Leaves, bales	lb.	.04½ .05
Valerian Root, Belgium bags	lb	.14 .16
VANILLA BEANS, Mexican, whole, cases	lb.	3.00 4.00
Cuts, cases	lb.	2.40 2.60
Bourbon, cases	lb.	.65 1.25
Vetivert Root, 100 lb bags.	lb.	.20 .25
Violet Flowers, bags	lb.	.80 .85
Wahoo Bark of Root, bags.	lb.	.28 .30
Bark of Tree, bags	lb.	.13 .14
White Pine Bark, Roseed, bags	lb.	.05½ .06
White Poplar Bark, bags	lb.	.06 .07½
Wild Cherry Bark, Natural thin,	lb.	.06 .07
Green	lb.	.09 .10
Rossed bales	lb.	.04 .05
Thick Rossed, bales	lb.	.09 .10
Wild Indigo Root, bags	lb.	.05 .06
Willow Bark, bags	lb.	.15 ...
White, bags	lb.	.05 .06
Witch Hazel Bark, bags	lb.	.06 .07
Leaves, bales	lb.	.06 .07
Wormseed, American, bags.	lb.	.08 .09
Wormwood, Herb, Imp., bales	lb.	.07 .08
Yellow Dock Root, bags	lb.	.15 .18
Yerba Mate, bags	lb.	.07 .08
Santa, bags	lb.	

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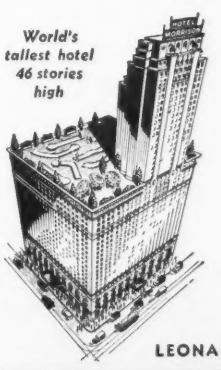

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Sunburn Preparations

(*Continued from page 311*)

quinine salt effective for this purpose and that quinine hydrochloride and quinine sulfate do not give good results.

Quinine bisulfate is also used in colorléss, liquid sunburn-protecting preparations. Due to the easier penetration of liquids, only 3% quinine bisulfate need be used, this being mixed with 20% glycerin and 76% water. One per cent. of perfume, resistant to acid, is added. Here again there is some possibility of irritation of the skin by the quinine salt and a protective cream may be applied over-night to counteract this. An oily preparation is also made with quinine oleate in a suitable vegetable oil or mixed base. Thus peanut oil may be used or olive oil and about 3 to 5% quinine oleate.

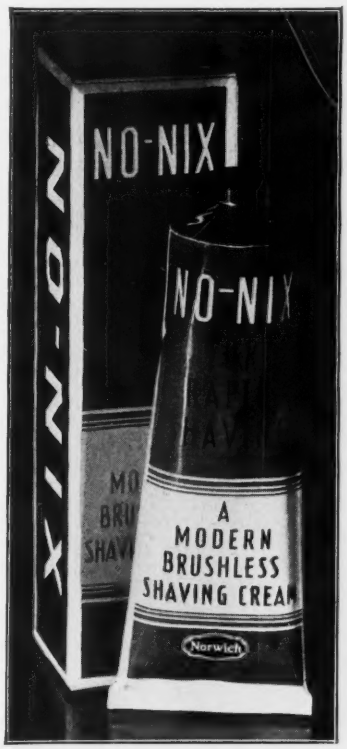
Quinine hydrochloride is also used in sunburn oils. The oil contains 3% quinine hydrochloride and vegetable oils such as peanut oil, olive oil and nut oils. The mixture may also contain zinc oxide, glycerin and talc and is perfumed with rose water.

Quinine bisulfate is also used in sunburn powders. The bases include magnesium stearate, talc, clay, titanium dioxide, etc. Thus 10% magnesium stearate, 20% clay, 58% talc, 5% magnesium carbonate are mixed with 3% quinine bisulfate and 4% mineral coloring matter. To 100 parts of this are added 2 parts witch hazel extract and 3% of a brown solution, containing 30 parts of rhodamine B and 7 parts of soap yellow in 600 parts each of alcohol and water.

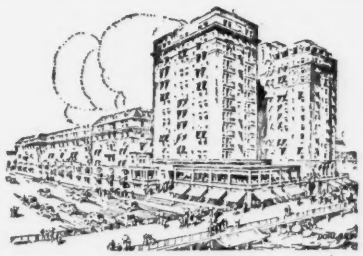
It is advisable to dissolve the quinine bisulfate in water and mix the solution with the powder base and other ingredients. The solution may contain about 8 to 10% of quinine salt. The total content of quinine bisulfate in the finished preparation may vary from 3 to 6%. It appears that it should be higher in the powder preparation than in the cream or oil and hence about 5 to 6% is best.

Another popular protective agent is salol. A cream is made from usual ingredients (for cold creams) to contain 7% salol. Dissolve the salol in the oily ingredients of the cream base and then mix with more solid constituents. A. Tede, writing in *Der Parfuemeur*, states that 0.1 mg. of salol per square centimeter of surface weakens the intensity of light to one-hundredth of its original value, and the exposure of skin, coated with salol cylate in this proportion for 10 hours will only then acquire the tan that is obtained by the action of the sun for 6 minutes on unprotected skin. The unfortunate part about salol is first its odor, and secondly irritating action on skin.

Another Brushless



Norwich Pharmacal Co. have recently released No-Nix, a non-lathering shaving cream which contains two qualities essential for comfort in shaving—it not only has sufficient body for the heaviest beard but has also unusually fine spreading properties.



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STANDING *on one's head in the sand* may be a lot of fun to a fourteen-month-old, but it is likely to give the posturer a peculiar outlook on life, to say nothing of the immediate scene.

Yet there are buyers, bless their trusting souls, who still believe they are buying products of quality considerably below the price which they know to be both fair and reasonable. But, like a child on a beach holiday, they are looking at things wrongside up.

It is an obvious and oft-repeated truth: "Seldom, if ever, do you get more than *that for which you pay.*" A bargain in price can be anything but a bargain in appearance, performance and satisfaction . . . whether it be automobiles, typewriter ribbons or metal caps.

It may be lots of fun shopping around, but be wary of the salesman whose chief argument is price. Now, more than ever before, you need to select materials and sources of supply with care and discretion.

PHOENIX METAL CAP CO.

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